

# COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, *Editor*

Volume 21

NEW YORK, THURSDAY, FEBRUARY 9, 1922

Number 6

## Check Off One Doubt

INTEREST in Washington now centers in the hearing before the Interstate Commerce Commission regarding railroad rates; in the outlying parts of the country chief interest is manifested in the possibility of a strike of the union coal miners next April.

But one conclusion regarding the final action of the commission in regard to rates can as yet be safely and surely drawn. It is a conclusion that should be widely and loudly broadcast throughout the land. It is that there will be no reductions in freight rates until April at the earliest. There may be reductions then or later, or there may be none. There may be reductions on some commodities and not on others. There may even be increases on some, but not on coal. But no changes can or will be made for two months or more. The volume of evidence to be digested and the importance of the decision preclude any hasty action.

Those who buy coal should have this fact, for it is a fact, firmly fixed in their minds. One reason for hesitancy in entering the market for coal is removed. It is true that there are others, the greatest of which is the possibility of a shutdown of the union coal mines and the interruption of supply, which together with the doubt as to future requirements, which hinge on gains in industrial activity, are certain to influence the character of the coal market this month and next, but two doubts are easier with which to wrestle than three.

## Barren Victories

JOHN L. LEWIS, seeing that he is about to meet opposition from the operators and the public and to face further desertion by thousands in the ranks of his followers, turns in despair to the railroad men. He has sent invitations to the officers of sixteen major organizations of railroad employees asking them to confer with him on the wage controversy, and he has received enough acceptances to feel hopeful that some such conference as he has requested will be arranged. Perhaps out of it will come a strike of railroaders and mine workers such as will bring all business to a standstill. Assuming that it comes about, it might conceivably bring victory—but the most barren and bitter of all victories.

During the past year Mr. Lewis has kept union wages in the coal fields up to the highest level attained since the war. Never in the history of mine labor have men received more for a day's work. If that is enough to constitute victory, no one has been more victorious than Mr. Lewis. Unfortunately, the high wage scales have kept the union mine workers idle except in the anthracite field, and the number of union men in the industry during the past year has been continually growing less. The union has become weaker than ever, for idle men, however devoted, can pay no dues. As none of the contracts now being arranged for the new

coal year is going to the union fields and as railroads are arranging to buy coal mined not adjacent to their own tracks but contiguous to those of others, it would seem that victory in 1922 would be even more Pyrrhic than in 1921.

Mr. Lewis cannot look to the unionizing of the non-union mines, with a consequent removal of their unequal competition. He can only expect the number of non-union plants to grow and the area they cover to spread if he wins a wage scale such as he is seeking. If all he gains by his appeal to the railroad unions is such a paper scale as gives the form and withholds the substance, he surely cannot mistake what he attains as being victory. He is not a man of narrow vision. He must be looking for something other than this. He surely has seen enough in the last twelve months to have sensed the situation clearly. It would be unjust to the public and the coal operators and those interested in railroads to suggest to them that Mr. Lewis is a fool who wants nothing but a continuance of last year's bituminous wage scale.

It is clear—is it not?—that what he wants is something that will raise non-union wages to the level of present union wages. This cannot be obtained by any other means than some form of national control of mines, ranging from a federal wage board up to complete federal ownership, such as the committee on nationalization under Chairman John Brophy advocates.

This is what he will propose, it would seem, to the officials of the railroad unions, with whom he hopes soon to be in conference. We may well assume something of this sort, or why did John Brophy, of the Nationalization Committee, have such an allowance of time and such attention at the tri-district conference of anthracite mine workers held at Shamokin?

This being apparently the proposition to be presented to the railroad men it is natural to ask how will they receive it. They have tried a federal railroad wage board, and it has not been satisfactory, to say the least, to the workers in the industry. It looked good to them at one time, but it has only resulted in a wage decrease for workers in their industry. Furthermore it will be remembered that they will be asked to advocate such a board in order that men less skilled than they shall be assured larger wages than they are themselves getting. Is it not natural, therefore, to question whether they will accede to Mr. Lewis' suggestions?

In Great Britain the mine workers' excessive demands broke up the triple alliance of miners, railroad men and transport workers. The same result may well occur here also and for like reasons. The railroad men of the United States will be equally wearied by the unreasonableness of their confrères. Deserted by the railroad men, the mine workers of the British Isles nevertheless in large degree won their strike, but the trade conditions were so anomalous that they found themselves entirely unprotected, and the result would not have been

different had the railroad men and transport workers entered into a sympathetic strike on their behalf. In this country the setback to business resulting from almost doubling the price of bituminous coal, as will be inevitable if it is to be based on union instead of non-union wages, might well slow down both mining and railroading so that neither would afford sufficiently steady work to protect the employees from starvation.

The demands being made are essentially unsound. They would undermine the very foundations of society, and would end inevitably in the discontinuance of the co-operative bargain. Mr. Lewis will have to write a saner platform before he can hope to win a victory that will be permanent. We cannot but fear that this possibility has not appealed to him, but if he is wise he will see it and if the railroad men are sane they will never consent to plunge with him into a strike that would involve everyone in a disastrous industrial depression.

The presidents of the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers, of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, and of the Switchmen's Union of North America are among those who have consented to accept Mr. Lewis' invitation of Feb. 1. The president of the Order of Railroad Telegraphers also declares he favors such a conference. It is probable, however, that these men agree to meet solely because by so doing they will exhibit such a solidarity of labor as will make the Federal Railroad Labor Board afraid to concede to the public or the railroad owners the wage reduction which has been asked. Mr. Lewis called attention in his message to efforts being made "to enforce further unwarranted wage cuts on them" (the railroad employees), and their interest may well be more to conserve what they have than to jerk chestnuts out of the fire for the union miners.

### *Co-ordination or Complication?*

INTO the already tangled web of governmental supervision, control and interference with the railroads the United States Chamber of Commerce is this week proposing to inject a new scheme—another body in Washington to do the somewhat indefinitely described thing of "bringing the public interest effectively into every railroad question." The official would be designated the "Commissioner General of Transportation"; he would be nominated by the President, confirmed by Congress and, with his staff, paid by the taxpayers. His duties, according to the proposal of a special committee from the Chamber that has conceived this super-office, would be, to quote in full its published statement:

"To keep himself informed of the transportation needs of the country and make such recommendations as he may find will be for the public interest and that would tend to co-ordinate the administration of laws and that would make possible the articulation and economic use of all transportation facilities.

"To ascertain and report conflicting or inharmonious functions and rulings . . . that cannot be so reconciled by administrative practices as to promote the general development of the co-ordinated system.

"To be notified of all hearings, to be entitled to be heard and to produce evidence that will tend toward a result that will promote and facilitate the continuous development of interstate transportation adequate and efficient to meet the needs of the country.

"To render all possible assistance to the Interstate

Commerce Commission in facilitating and advancing the consolidation of railroads.

"To be authorized to grant federal charters to corporations proposing to engage in interstate transportation by land, water or air and to convert state corporations into federal corporations."

There are many who contend it to have been an error to divide responsibility between the Interstate Commerce Commission and the Railroad Labor Board and who advocate their consolidation in order that the functions of setting rates, which determine revenue, and determining wages, which affect income, may be better co-ordinated. We are among those who would prefer to reserve judgment on the Transportation Act in this regard until more time has elapsed and our experience with this dual functioning is more mature. But to jump in now and propose a third body whose duty, as we read the announced program, would be that of co-ordinating these two, would but complicate matters, with no advantage.

The railroads are now circumscribed by the Interstate Commerce Commission, acting presumably in the interest of the rate-paying public, not to mention innumerable state commissions, and by the Wage Board. There are many private organizations representing the shippers, as the National Industrial Traffic League, through which shippers present their ideas, claims and contentions to these governmental bodies. The railroads have their own associations, as have the railroad laborers, to represent them. There may be occasion for such a "predigestor" as the Chamber suggests, but we confess to our inability to envision that need. The interest of the public in the railroads begins and ends with having adequate, uninterrupted service at reasonable non-discriminatory rates. Laws and judicial and administrative bodies have been erected to permit the fulfillment of these ideals. That they do not function perfectly is a consequence of the frailty of the human mind. To install more machinery on such generalizations as the Chamber of Commerce has proposed is unnecessary. It seems as if the Chamber were running out of good ideas.

THE STUDY OF INTERMITTENCY in the coal industry which is to be made by the coal committee of the President's industrial conference will not be launched until after the labor controversy has been settled. The study is to be made in co-operation with the Department of Commerce and Secretary Hoover feels that any government inquiry at this time is likely to be misinterpreted. It is feared that this investigation might be regarded as an effort to gain information for use in meeting the strike situation. With the tension which now exists in the coal industry, it is recognized that it would be difficult to obtain the co-operation necessary for a real study of intermittency.

GEORGE H. CUSHING, managing director of the American Wholesale Coal Association, is preparing a statistical table which will show the tonnage line which divides car abundance from car shortage. While the figures are not complete, his study thus far shows that serious car shortage does not begin to develop until the 10,000,000-ton per week point has about been reached. As the coal movement approaches the 11,000,000-ton mark it begins to interfere to an increasing extent with the movement of other commodities which must be hauled in open-top cars.





SHOVEL LOADING FIVE-AND-A-HALF FOOT SEAM OF COAL AT LITTLE WAR CREEK COAL CO. MINE, IAEGER, W. VA.

## How to Handle Mines So as to Get Best Results from The Use of Shoveling Machines in Underground Work

Suitable Physical Conditions and Mining Methods Are Necessary Where Loading Machines Are to Be Successful — Ways by Which Coal Can Be Loaded Free of Partings — Machines Save in Men, Cars and Houses

BY WILLIAM WHALEY  
Knoxville, Tenn.

**I**N VIEW of the fact that coal operators are becoming increasingly interested in the loading of mine cars underground by machine and seeing that these machines are being more and more introduced into coal mines, it is necessary to have a thorough understanding of the requirements for their efficient operation, because their success will depend largely on the way in which they are handled. The remarks which follow are based on the use of Myers-Whaley shoveling machines. The physical characteristics of the coal bed are of prime importance. These will be treated briefly in the paragraphs that follow:

First, the thickness of the coal bed must be such as to afford an adequate net height from the top of the rail to the roof of the mine. The No. 3 machine can be used in a 5-ft. bed. This is the minimum thickness, however, and where machines are employed in such measures the use of steel mine ties, making the height of the rail about 4 to 5 in. above the floor, is considered necessary in order to save height.

The minimum height from the top of the rail to the top of the conveyor belt on this machine is 3 ft. 8 in., which gives a clearance between the top of the conveyor belt and the roof of the mine for the passage of lumps of coal of 11 in. The conveyor should clear the side of the car from 6 to 12 in. and for coal 5 ft. thick the top of the car should, therefore, be not over 30 in. above the rail. Fig. 1 shows a cross-section of a suggested car for use in coal 5 ft. to 5 ft. 6 in. thick.

The character of the coal—that is, whether it is tough and hard to shoot or shoots freely and comes out in a mass that is readily shoveled—also must be considered. If the coal is extremely tough and has a tendency to stand after shooting, experiments should be made to determine the proper kind of cut and the best method of drilling and shooting the coal so as to free it without breaking it up too much for the market. The best method of doing this is by trying different methods and keeping records of the results. It is highly desirable that the coal be prepared in such a way as not to delay the loading.

It is expected that the preparation of shots yielding results best suited to mechanical loading will in some instances require more labor than if hand loading were practiced. This extra work in the preparation of the shots will, however, be more than offset in the loading costs. A well-prepared shot will result in an increased tonnage being shoveled in a given time. It also will obviate the necessity of keeping men in front of the machine to pull down the standing coal.

The snub cut may be made directly by a cutting machine designed to produce in one operation a high or wedge-shaped kerf. The same result may be obtained also by a two-stage cut—that is, making first the ordinary flat cut on the bottom, and then the snub cut proper by raising the cutter bar and tilting it forward and downward. The snub cut may be produced also by hand picking. It may be found most advantageous to

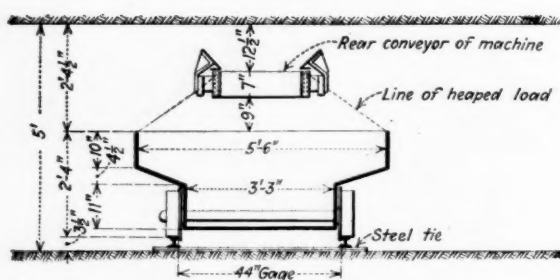


FIG. 1. SUGGESTED SECTION FOR CAR TO BE USED FOR MACHINE LOADING A FIVE-FOOT SEAM

Note in particular the elevation of the rear conveyor of the loader. At the point of discharge, room is provided for 12 in. of coal bed. The level capacity is 72.7 cu.ft. and the heaped capacity 102.7 cu.ft.

drill preliminary holes for light snub charges of explosive, or to follow other methods that will suggest themselves to the experienced mining man. See Fig. 3.

Cutting machines in many instances leave several inches of coal on the bottom that may be cut loose by the miner. This process, called "scrapping," may constitute a large proportion of the labor involved in loading the coal into the pit car.

Unless the coal bed is firmly cemented to the mine floor the shoveling machine will take up this material and load it with the mass of loose coal. It is only necessary for the shovel operator to lower the scoop to the proper point to reach this layer of bottom coal.

Where this scrapping must be done after the loading of the loose coal it may be accomplished by means of hand picks or with air- or electrically-driven punching machines. It is more advantageous, however, for the cutting-machine men to take the necessary pains to keep the cutter bar down and tilted slightly forward so that the machine makes its own bottom without the necessity for scrapping. In such a case successive cuts will show no tendency to climb upward into the seam of coal.

Partings in the seam also must be considered. Are these partings of dirt or slate? Can the parting material be readily distinguished from the coal? At what point does the parting occur? If near or below the middle of the bed it is practicable to use a machine that will either cut in the parting itself or just above it and shoot the top bench of coal, which will come out clear of the lower bench. This may then be loaded out after which the parting may be loosened and shoveled either into cars or into the gob at the sides. The bottom bench may then be shot and loaded.

This, of course, entails more time than does loading from a clean bed of coal and proportionately reduces the tonnage that can be loaded in a given time. This procedure, however, can be economically followed if circumstances demand. Should the parting be of such nature that it can be readily picked out underground it may be well to shoot down the entire face and have the parting picked out and gobbled by hand while the machine is working.

A still more advanced method of dealing with coal-carrying dirt partings would be to design outside equipment at the tippie to separate the dirt from the coal before it is loaded into railroad cars. This, of course, might necessitate large slate-disposal facilities. The proper method or that best adapted to handling the parting should be carefully worked out before machines are installed. Fig. 2 shows one of several practicable methods of handling a parting.

In considering shoveling machines of the Myers-

Whaley type it should be borne in mind that the grade of the track should not exceed 7 or 8 per cent, as the machine will not operate with best results upon a greater inclination. If the bed of coal is pitching steeply, it will be necessary to work the machines across the pitch, and if the slope is such that these machines cannot clean up on either side, then some type of loading apparatus should be employed.

The transportation of coal from the machines to the outside of the mine has a vital bearing upon both tonnage and economy. The transportation system must be planned so that it can take care of the large quantity of coal which the concentration in production will afford. For instance, a shoveling machine loading at an average rate of one ton per minute has only forty minutes of actual work in a room in producing forty tons. Every minute used for shifting cars or consumed in waiting for them adds to the time necessary to clean up the place. Such a room, with good car shifting, should be cleaned up in an hour and a half. This feature of transportation is one which will repay the closest study and most careful consideration.

#### CARS SHOULD HOLD AT LEAST THREE TONS

It is essential also to use mine cars as large as can be readily handled. Cars that will hold a minimum of three tons are recommended, and they should be even larger in thick beds of coal. Such cars should be built low and wide, their over-all length ordinarily being limited to approximately 10 ft. Fig. 1 illustrates a good type of car for machine loading.

The system of trackage employed in rooms as well as in development work should be carefully planned, bearing in mind always the necessity of arranging for a quick shifting of cars. There should be a track for each 16 ft. of width in each working place if the No. 3 size of machine is used, and for each 19 ft. of room width for the No. 4 size machine. Rails for the No. 3 size machine should weigh at least 24 lb. per yard,

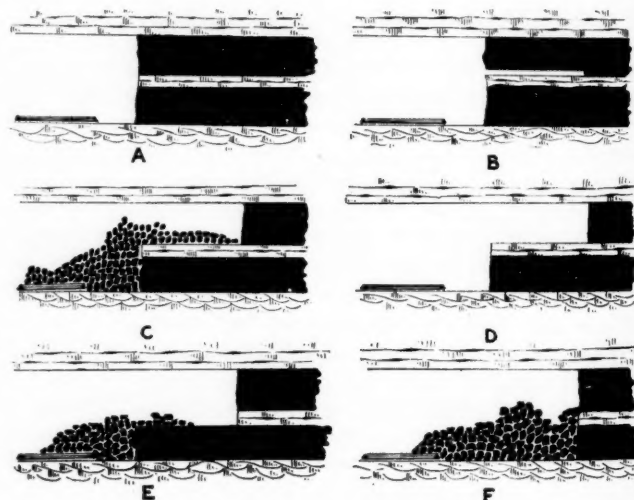


FIG. 2. METHOD OF MINING A SEAM HAVING A DIRT BINDER NEAR THE CENTER

A shows a room cleaned up and a shallow track laid to within 8 ft. of the back of the machine cut up, where the cut is 6 ft. deep, within 2 ft. of the face. B shows machine cut made just above the dirt parting. C shows the upper bench shot out and raked onto the floor from the top of the parting, ready to be loaded by shoveling machines. D shows the face after the top bench has been loaded out. The parting can now be shot loose or pried off with bars. If the bottom was shot at the same time as the top the parting will be broken and easy to load. E shows the dirt parting broken up and raked onto the mine floor ready to be loaded by the shoveling machine. F shows the lower bench shot loose and ready to be shoveled by machine. If the lower bench was shot at the same time as the upper, no shooting later will be necessary.



and for the No. 4 machine 30 lb. per yard. Fig. 4 shows a common arrangement of track for room work.

Machines can be advantageously employed in either the room-and-pillar or the longwall system of mining. In long face work the tracks can be laid parallel with the face and the cars moved in a trip under the rear conveyor. This arrangement is capable of developing the largest possible capacity from shoveling machines. In considering the adoption of longwall mining, much, of course, depends upon the character of the coal bed. It logically comes within the province of the mining engineer to determine whether this system is practicable. Fig. 5 shows the arrangement for longwall loading.

#### DIVISION INTO DISTRICTS FACILITATES OPERATION

To facilitate operations as far as possible, I would suggest the organization of a mine into districts in such a way as to give each shoveling machine a territory that will produce enough coal to keep it continuously employed at its average rate of production. In a district where the rooms produce approximately 40 tons each, about six rooms should be allotted to a machine. A cutting machine also should be allotted to this district, and the organization would comprise the cutting machine and its crew, the drilling and shooting crew, the track crew for advancing tracks, the loading machine and its crew and a gathering locomotive for moving cars to and from the machine.

This would be considered a unit outfit, and there should be as many such units as are required to produce the desired tonnage from the mine. It is not practicable to give an outline of an organization that would be suited to all circumstances. One adapted to certain specified conditions may, however, be presented.

Accordingly, an outline of such an organization intended for use with loading machines in a bed of coal 5 ft. 6 in. thick, using chain undercutting machines and No. 3 size of shoveling machines, is herewith submitted. It is assumed that the coal is of a character that shoots readily and does not stand after shooting, has no partings and that the grades are not over 5 per cent. A track gage of 42 in. and cars 36 in. above the rail and holding three tons have been also assumed.

#### EQUIPMENT AND PERSONNEL OF A UNIT

The equipment for such a unit would be as follows: A cutting machine, a drilling machine, a gathering locomotive and a shoveling machine. The personnel of the unit would be: A trackman, who also is the unit foreman; a trackman's helper, a cutting-machine operator, a cutting-machine helper, a locomotive runner, a locomotive brakeman, a drillman, to drill, charge and shoot the coal; a drillman's helper, a shoveling-machine operator, and a shoveling-machine helper, making a total of ten men.

This unit would cut, shoot, load and place on the main haulway approximately 200 to 250 tons of coal per 8-hour shift. The cost would depend upon local rates of pay for the above work.

Each unit should have one butt entry and air course together with the crosscuts between them and the requisite number of rooms and room necks. Such a unit should drive its own development work on this entry at the same time that it is loading coal from the rooms. Assuming that entries are 10 ft. and rooms 32 ft. wide, turned on 60-ft. centers, with crosscuts between entry and air course every 80 ft., and that a 6-ft. cut is

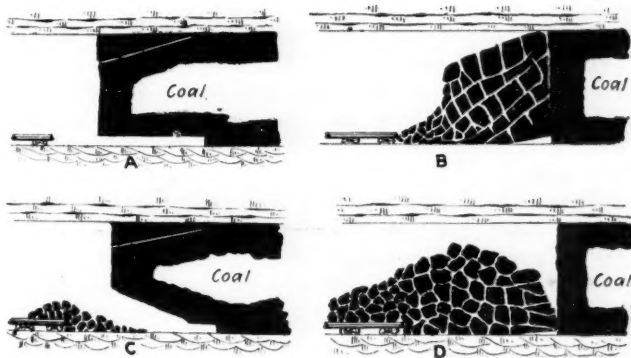


FIG. 3. MINING COAL SO AS TO AID IN PREPARATION

A and B show a shallow undercut and a light charge which gives an annoying "standing shot" which has to be pulled out from the face or popped, making as much fine coal as if shot properly in the first instance. The shoveling machine will load this shot with less breakage and more lump than will hand loading but the speed is less than with a well-tumbled shot as shown in D. Compare B and D, where, as a result of a "snubbed" undercut such as is shown in C, a greater percentage of lump is obtained, the coal breaking on the natural planes of cleavage without the formation of dust. The shot is easily and quickly loaded, but the snubbing of the coal involves some expense.

taken each day in both entry and rooms, there would be six rooms going or started and the total number of working places at any one time would be:

One airway .....	10 ft.
One haulway .....	10 ft.
One crosscut .....	10 ft.
One room neck .....	10 ft.
Five rooms .....	160 ft.
Total .....	200 ft.

Thus a total length of face amounting to 200 ft. must be undercut, shot and loaded out each day. About 220 tons of coal per day can be procured from this territory. Rooms would be driven up about 300 ft., so that the entries would advance at the same speed as the room work, one new room being developed as an old one was completed, thus keeping the development at the proper distance ahead of the room work. Rooms should be widened in such a way that the loader can reach all the coal, two tracks being used after full width has been attained. These will be spaced about 8 ft. from each rib. Breakthroughs should be at an angle of about 60 deg., in order to facilitate track work and loading. Fig. 4 illustrates two adjacent rooms of a unit of this kind operated as above described.

A unit of this type uses fewer cars than would normally be required for the tonnage obtained. Loading 220 tons per 8-hour shift in 3-ton cars means seventy-three carloads of coal, or about nine cars per hour. Assuming that the main haulage locomotive delivers cars in trips of nine each to this unit, a trip of loads is taken out each hour and a trip of empties returned. It may be considered also that a trip is continuously on the tippie or in transit. Thus the total number of cars per unit would be twenty-seven.

Hand loading of an equal tonnage would require about twelve working places, these consisting of ten rooms and two entries. Each room would contain two cars being loaded, and each of these two cars would require about 4 hours for filling—that is, each car would make not over two trips per day. With nine cars on the tippie track, the total number of cars required would be fifty-three. Machine loading, therefore, saves an investment of twenty-six cars per machine unit. These, at \$175 each, represent the sum of \$4,550.

A lessened investment in houses also is made possible. For machine loading each unit would employ in all ten men. To load an equal tonnage by hand at least twenty-two men would be needed. If we figure one

house for every two men, only five houses are required per unit for machine loading, and eleven houses for hand loading, making a possible saving of six houses. Assuming that these dwellings cost \$1,500 each, the saving in the investment for houses amounts to \$9,000 per unit.

From the above analysis it would appear that the initial investment in a machine-equipped mine will not be as great as in a hand-loading operation. In fact the possible saving in houses and mine cars alone is greater than the investment in machines. Many other economies, however, may be effected by the use of machine loading. Some are so intangible that they cannot be estimated with accuracy, but all have their bearing upon the total cost of production. I enumerate below the cost elements susceptible of reduction by this means. The saving possible on each individual item the experienced mine operator will be able to judge for his own conditions.

Thus savings may be made in the cost and in the rapidity of development, in the reduced number of cars needed for any given tonnage, in trackage, haulage, and ventilation because of a reduced territory, in houses because fewer men are needed, in the division of the mine into districts with unit organizations in each, in the cost of loading coal into mine cars, amounting to

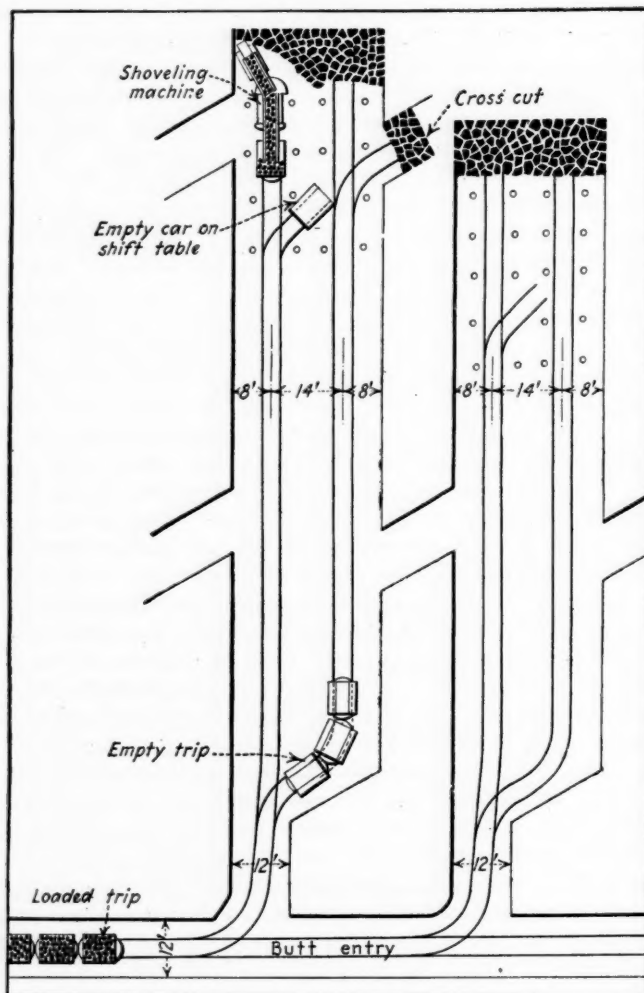


FIG. 4. METHOD OF HANDLING CARS AND TRACK

An empty car is kept on a climb-over switch just behind the shovel. It is placed either by a mule or a gathering locomotive. An empty trip of cars for the purpose is kept on the main track or on the side track of the room, depending upon whether the loading machine is working on the side or main track. The coal from the crosscuts is loaded out by machine as is the coal in the room face. When the coal is undercut the track is advanced to within 2 ft. of the face and the coal is shot down on it.

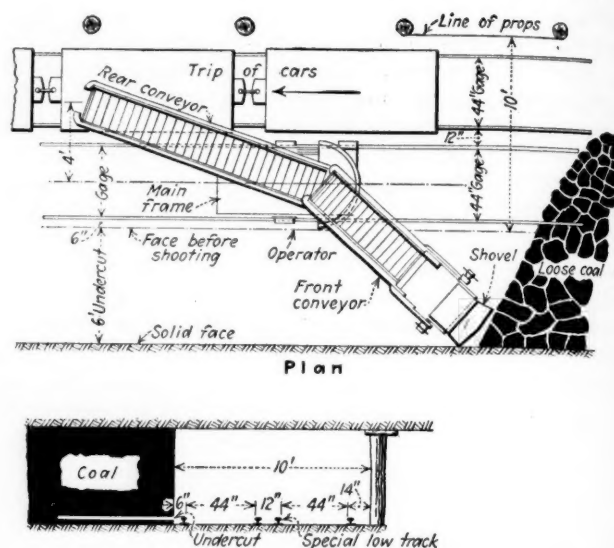


FIG. 5. SHOVEL CLEANING UP A LONGWALL COAL FACE

If the props are set 10 ft. clear of the line of the face before shooting and 16 ft. from the line of the face after shooting, there is room for both the shovel and a trip of cars, the gage of the shovel and of the cars alike being 44 in.

approximately 50 per cent of the cost of hand loading. A better class of labor will be obtained and freedom enjoyed from labor troubles.

In addition to these advantages, mechanical loading secures to the operator that highly desirable factor in coal mining, namely, flexibility of production. It will be recognized that where a considerable and sudden increase or decrease in output is desired it will be a simple matter to regulate production by adding more machines or suspending the operation of some, as the situation may demand. On the other hand, the machine equipment may be double- or triple-shifted if an emergency so require. Where an unwieldy force of strictly hand labor is employed this flexibility of production is obtained only with great difficulty, and where possible at all, it is so slow or is obtained in such small degree that no adequate advantage can be taken of any sudden and fleeting opportunity to meet an unusual and advantageous market demand.

At the present time (1921), as previously stated, the type of machine here considered is being manufactured in two standard sizes. These possess the following salient characteristics:

The smaller size weighs about 13,000 lb., has a minimum height from rail to top of conveyor belt of 3 ft. 8 in., is about 22 ft. long, cleans up a space 16 ft. wide and can be used satisfactorily in beds of coal not less than 5 ft. thick. It has an average capacity of 50 to 60 tons per hour of actual shoveling time.

The larger size weighs about 18,500 lb., has a minimum height from rail to top of conveyor belt of 4 ft. 7 in., is about 26 ft. long, cleans up a space 20 ft. wide, and can be used satisfactorily in coal beds not less than 6 ft. 4 in. thick. It has an average capacity of 60 to 70 tons per hour of actual shoveling time.

These two machines are identical in general design and arrangement of parts, as well as in operation. Both are standardized and have interchangeable parts. The machines are built for heavy, continuous service, not only in coal but in handling iron and other heavy ores, as well as for use in rock and tunnel work. The coal machines thus can be used for cleaning up rock falls, lifting bottom, driving drifts and the like. This is particularly advantageous during development and mine opening.



## Specification Systems Should Not Be Permitted to Eliminate Judgment in Coal Buying

Varying Factors of Many Buyers' Requirements Not Reducible to Mathematical Formulas—Ignorance of Coal Sellers as Well as of Buyers Responsible for Inaccurate Claims—Is a Universal Standard Possible?

BY GERALD B. GOULD\*

WITH the return of competitive conditions in the coal market there naturally is a revival of interest in the matter of buying coal under specifications, which was slowly but steadily making headway up to about 1915. The greatest weakness in any such movement is the tendency to think too much of the form and too little of the substance of the matter, to expect a mechanism to act as an automatic substitute for judgment in selection and skill in negotiation.

There was a time, not so long ago, when efficiency was synonymous with some "system," when to many minds the "system" was more important than the results. System became a cult, and in many other fields besides business the followers of a cult have offered universal cures for all ills. The worship of a mechanism led us to many excesses of systemization. But out of it all has come much good—many improvements of great value to business. But also from it has ultimately come a higher respect for some of those old fundamental forces which our pioneer grandfathers understood, a better valuation of those qualities of judgment, skill, leadership, pride of accomplishment, and desire for self-expression—purely human qualities which, after all, furnish the backbone to successful enterprise.

### COAL BUYING AN ART; NOT A SCIENCE

And so it is with coal buying, which is and always will be an art rather than a science, although it involves several branches of science. The danger is that we may overvalue a *system* of coal buying, to the neglect of the art itself. The most successful coal buyer equips himself with all the facts, and then by the exercise of judgment, he reaches a decision involving the balancing of many varying factors the relation of which to his particular requirements cannot possibly be reduced to a mathematical process.

The vast majority of coal buyers have available to them several hundred different coals, offered by as many producers or dealers. Each of these coals differs from all the others in (1) its average heat value, (2) its volatile, (3) its sulphur, (4) its fusing point, (5) its price. In addition there are differences in physical characteristics, such as size and coking qualities, in uniformity of quality, as well as differences between dealers and producers in respect to their business standing and reliability, and ability to fulfill an agreement.

Then there are the peculiarities of one's own plant, which must be considered in relation to all these other variables; and these peculiarities are not all mechanical either. The successful coal buyer is one who knows how to get at these facts and how to balance them, giving the proper weight to each one for his own

particular requirements. If a coal buyer is adequately informed and qualified to judge of the facts, the use of specifications is scarcely more than a detail of procedure. If he is not sufficiently informed, then, as we shall try to show later, he is not in a position to use specifications safely. The machine may produce some unexpected and unhappy results, just as an automobile in the hands of a novice may perform some very undesirable maneuvers.

It may seem superfluous to inquire into the purpose which coal specifications are intended to serve, but the more opportunity one has to observe the practical effect of specifications, the more closely he finds their success or lack of it is related to the present state of the art of coal buying.

### BUYERS DEFICIENT IN COAL KNOWLEDGE

There is plenty of evidence, which cannot be presented in an article of this length, to show that the majority of coal buyers are not anywhere near adequately informed as to actual coal values, and the majority of producers and dealers are either uninformed or misinformed as to the actual quality of the product they are selling. A careful study of the average delivered quality of some 2,000 bituminous coals produced in Pennsylvania, Maryland and northern West Virginia shows that the percentage of coal averaging under 10 per cent ash and 1½ per cent sulphur in each of the three main divisions of this field are as follows: Low volatile, 25 per cent; medium volatile, 7 per cent; high volatile, 8 per cent.

If any coal buyer will take these figures, which have been derived from the actual tests on some 30,000 deliveries of coal from this field, and compare them with the claims to be found in his file of coal offers, he will find proof of the statement just made regarding the prevalence of misinformation or ignorance as to actual coal values in the coal trade. It is not so much a matter of conscious misrepresentation. One can be inaccurate without being untruthful.

### INEXACT CLAIMS AS TO COAL QUALITY PERSIST

It should be remembered that the scientific measurement of coal values is really only in its infancy. It is characteristic of any such movement that traditional conceptions yield very slowly in men's minds to newly discovered facts, no matter how unfounded the traditional idea may be. Anyone who would see clearly the problem of coal buying in its broader aspects must take into consideration this state of mind, which is just as real and just as important a fact as are the facts about coal quality. The prevalence of inaccurate claims as to coal quality and the persistence of this condition in itself shows that the majority of coal buyers also are inadequately informed. An enlightened, intelligent and discriminating buying

\*Vice-president, Fuel Engineering Co. of New York.

public will automatically bring home to the producer of any commodity the necessity of accurate branding of his goods.

It is a significant fact that you can take any group of ten or twenty coal offers, and find upon careful analysis of the values offered that price bears no determinable relation to quality. Through fifteen years of experience, in the course of which thousands of such groups of bids have been analyzed, there has not been an exception to this general condition. It is, of course, true that some good coals are sold at higher prices than some poor ones, but the exact reverse is just about as likely to be found.

It must be remembered that a scientifically accurate determination of value is useless unless a sufficient number of people believe it. What coal buyers *think* about a coal is of more weight in determining its market value than are the facts, until the facts become accepted by a sufficient number of people. If an uninformed buyer *thinks* a coal has 6 per cent ash, when it actually has 14 per cent, he is certainly guided by what he thinks, and acts accordingly. This, of course, is obvious, but the importance of it is that the present lack of relationship between prices and values could not exist if the majority of coal buyers were actually guided by reliable information.

#### BRINGING PRICE AND VALUE IN TRUE RELATION

This is not intended as an indictment or a criticism of either coal producers or coal buyers. It is merely a statement of a condition which does exist as a necessary step in the development from an utterly uninformed indiscriminating condition to an approximation, at least, of the condition which other basic commodity markets have already reached, where values and prices have become related as a result of better, more accurate and more generally distributed information. It is not a matter of morals, or ethics, or intelligence, but merely a stage in the evolution of an extremely intricate, far-flung basic market.

If A sells coal, which in a scale of 100, we will say, is worth 90, at \$2.50, and his customers are satisfied, while B is selling a coal which we will rank at 98, for \$2.25, certainly A is under no moral obligation to take less. He is under no obligation to hunt up for his customer some better proposition offered by a competitor. If a coal producer honestly but inaccurately tells a customer his coal will average 6 per cent. ash, when it really is nearer 10 per cent., and if the customer is satisfied to accept that as his only measure of value, there is no incentive to the coal dealer to spend time and money to carefully investigate the matter of his coal's value, especially when he believes he already knows it.

There is a further disadvantage in this situation to the consumer as a class, in that the producer of the best product often does not get as much as he should in proportion for it. It is discouraging to the man who already produces a superior product, and eliminates the incentive there should be for others to improve their quality. It is, of course, true that the minority, and it is very small, of the coal buyers who are adequately informed are able to take advantage individually of the illogical price relationships created by the uninformed majority. That, however, is a legitimate business opportunity which operators in every market who are better informed make out of

conditions created by the less well informed majority. As the informed majority grows prices are stabilized and brought into truer relation with actual values.

But what, you are probably saying, has all this to do with coal specifications? First, we should understand the fundamental conditions before we attempt to modify or add to them by introducing a method which while not new has never been widely used. In the second place it is worth while to inquire as to whether the demand for specifications does not grow out of a gradual awakening among buyers of the very conditions already outlined, out of a feeling of growing dissatisfaction with the uncertainties inherent in coal buying as it is generally practiced. And third, if the foregoing is true, it may give us an indication of what specification buying is intended to accomplish, and whether or not specifications are really what is most needed at this stage in the development of the art of coal buying.

The question is not as to the validity of the theory of definite specifications for coal or for any other commodity. The principle of having a definite agreement between buyer and seller as to quality and quantity is absolutely sound. To get back to the simile of the automobile, there is no question about the desirability of having one, but the problem is to build one that actually runs and that you can drive without getting hurt or without hurting somebody else. And you might add that it is worth considering whether the roads at present available are good enough so that you can drive over them without too much discomfort, or without too many breakdowns.

#### SPECIFICATIONS MUST UNDERGO EVOLUTION

It is true, of course, that somebody had to first build a feeble, wheezy, "one-lung" automobile, before our great automobile industry could be built, but it is also true that it took fifteen or twenty years of costly development to produce the reliable, comfortable motor car of today. Coal specifications have been made to run, and to do so smoothly and to the mutual satisfaction of buyer and seller, *under certain circumstances*. Some form of specifications will without doubt eventually be in general use. But it is not going to come over night. Continued thought, discussion and experimentation is to be encouraged, but the problem should be approached with wholesome respect, and without any illusions about immediate results. Otherwise there will be unnecessary discouragement and unnecessary obstacles will be introduced by those who are trying hardest to solve the problem.

There is danger in experimenting with this mechanism called coal specifications, because it is made of only paper and ink and words. There are no wheels to go round. You don't know at times whether it is running or not unless you hit some bumps, and then the lack of springs and upholstery becomes painfully apparent. Perhaps the exact place specifications can properly occupy in coal buying can be made clear by inquiring into the most important single feature of them: the standard of quality.

The idea of coal specifications today implies a variable settlement price, which depends upon the actual quality of the coal delivered in relation to some "standard" which is agreed upon. How is that standard to be determined? Is it possible to establish a universal standard coal—an ideal coal—from which the relative



value of all coals can be mathematically determined?

Whether the standard is to be an ideal coal or not, a universal standard is an impossibility in the United States and particularly in the Eastern states, which have available coals of more diverse characteristics than any large coal consuming area in the world. If it were only a matter of heat value, it would be simple to establish a mathematical relationship. And such a relationship can form the basis of determining relative values as between coals having in other respects substantially the same characteristics. To illustrate, assume two coals of equal heat value, but one of them having a fusing point of 2,400 deg. and the other 2,800 deg. Now a plant which could use the 2,400 deg. coal satisfactorily could not afford to pay more for the 2,800 deg. coal, although this latter coal has a higher intrinsic value and in a normal market would bring a higher price. On the other hand, if a plant needed a coal having a fusing point of 2,800 deg., it could not afford to take the 2,400 deg. coal at any price. Either a coal in this respect is satisfactory for the particular requirements of an individual buyer or it is not, and there is no adjusting the difference by any arbitrary scale or mathematical formula.

The same thing is true of volatile. Assume that the buyer operates a plant in a large city in which smoke ordinances are strictly enforced. And suppose

that his equipment is such that it is difficult or impossible for this plant to avoid objectionable smoke with coal which has more than 20 per cent. of volatile matter. There is no way to establish any definite relationship between a 20 per cent. volatile coal and one having 30 per cent, as far as its value to this particular consumer is concerned.

In some plants, because of a combination of plant characteristics and load requirements, a certain minimum heat value is essential, while in other plants it is not so important. Sulphur has a certain but not very closely defined relation to the fusing point. It is supposed to have some relation to the likelihood of spontaneous combustion. It has some other deleterious effects, on which no one has yet succeeded in placing a money value. We do know that low sulphur coals are preferable but the difference in value between a 1 per cent. sulphur coal and one having 2½ per cent. will differ with individual consumers.

Then there are physical characteristics. In the case of screened coals there is the question of the percentage of fines. In one plant this may have a more important bearing than in another. There are other characteristics which must be considered at times, but it is unnecessary to go further to demonstrate the impossibility of establishing a universal standard on which relative values can be based.

## National Mining Institute Will Present Twelve Papers on Coal-Mine Operation

HOWARD N. EAVENSON will preside at the mining session of Wednesday, Feb. 22, of the annual meeting of the American Institute of Mining & Metallurgical Engineers, at which the following papers will be presented: "Bituminous Coal Mining," by T. H. Clagett, chief engineer, Pocahontas Coal & Coke Co., Bluefield, W. Va., with carefully elaborated discussion by H. S. Gay, Jr., general superintendent, Mount Gay, W. Va., who has devised an interesting method of operation; Frank Haas, consulting engineer, Consolidation Coal Co., Fairmont, W. Va.; M. F. Peltier, vice president, Peabody Coal Co., Chicago, Ill.; Erskine Ramsay, consulting engineer, Birmingham, Ala.; Edward H. Coxe, general manager Snowden Coke Co., Pittsburgh, Pa., and Edward Newbaker, Philadelphia, Pa.

D. C. Ashmead will present his paper entitled "Can Anthracite Mines Be Operated Profitably on More Than One Shift?" and H. H. Stoek one on "Considerations Affecting the Extraction of Bituminous Coal in American Mines."

Other interesting papers at that meeting will be one on the "Underground Fire Prevention of the Anaconda Copper Mining Co.," by E. M. Norris, and one on "Mine Fires and Hydraulic Filling," by H. J. Rahilly, mining engineer of the same company at Butte, Mont.

At the mining session of Tuesday the leading paper will be "Storage-Battery Locomotives as Applied to Mine Haulage," by Charles E. Stuart, an exceptionally interesting paper. At the joint session of the institute with the National Safety Council, presided over by B. F. Tillson and H. F. Lunt, Rudolf Kudlich, assistant to the chief mechanical engineer of the Bureau of Mines, Washington, D. C., will present an article entitled "Safety Devices in Mine Shafts," and R. M. Raymond, professor of mining engineering, Columbia University, a paper entitled "Safety Practice for Hoisting Ropes." There will be three other articles on hoisting.

J. J. Walsh in the Safety Session of Feb. 21, which will be on Ventilation, will discuss the coal-mining phase of that subject. Three other papers will be presented on the ventilating of mines.

Other sessions will be held on "Ground Movement and

Subsidence," "Breakage and Heat Treatment of Drill Steel," "Foreign Oil Possibilities" (two sessions); "Petroleum and Gas" (two sessions); "Mining Methods" (Iron and Copper); "Industrial Relations," "Non Metallic Mining," "Waste in the Mining Industry" (in conjunction with the Mining & Metallurgical Society), "Metals" (three sessions), and "Iron and Steel" (two sessions).

A smoker will be held on Monday evening, theater parties on Tuesday, and a banquet on Wednesday will fill up the round of amusement. For Thursday several excursions are planned for different parties, one to the Crucible Steel Co.'s plant, another to the Bayway plant of the Standard Oil Co., and a third to the Chrome plant of the U. S. Metals Refining Co.

In the afternoon the Pardee Steel and the Pardee Tile Works will be visited by one party, either the Chesebrough Manufacturing Co. or the Berber Asphalt Co. will be viewed by another and either the Standard Underground Cable Co. or the Raritan Copper Works will be inspected by a third. An interesting four-day program has been prepared for the ladies attending the Institute.

THE UNIVERSAL GAS MASK has been fully developed for protecting the wearer against all poisonous gases not exceeding 2 or 3 per cent concentration in air where a safety lamp will burn, the flame showing that enough oxygen is present to support life. Universal gas masks weigh 8½ lb. and give a maximum time of protection. A fireman's gas mask also has been developed which has a smaller canister, weighs only 5½ lb., is less cumbersome than the universal mask, but has a shorter life. Tests of the universal mask are being made in actual use, after which complete specifications will be given. At the request of the Navy Department the Navy gas masks have been tested by the Bureau of Mines for protection afforded in fire fighting.

IN AN ARTICLE entitled "Is a Coal a Mineralized Peat Bog," etc., Jan. 5, p. 9, appear the words "It has also been observed that when the roof of a coal bed is composed of black slate the roof is thicker than when it is composed of sandstone." The words "the roof is thicker" in this sentence should have read "the coal is thicker." In the caption of the upper illustration on page 1010 of the issue of Dec. 22, "4-in. water gage" should be "1-in. water gage."

## Telephone Circuits in Shafts Should Be Independent; Safety Precautions Taken at Pettebone Colliery

To Connect Telephones of Top and Bottom Cagers and Hoist Engineer to the Main Line Is Dangerous Practice—Keep These Instruments on an Isolated Circuit Until Necessity Demands Otherwise

BY DEVER C. ASHMEAD  
Kingston, Pa.

**F**EW people, possibly, realize how dangerous it is to connect the telephones of the various shaft stations and that of the hoisting engineer directly to the mine circuit, as is the present custom. With this arrangement it is quite possible that orders will be misunderstood and a serious accident result.

Let us suppose a case. Assume that the mine has two hoisting shafts and that the hoistmen have the same first name—John, for instance. Suppose, also, that at one of the shafts men are being admitted to the cage, and on the other timber is being loaded. The shaft tender, we will say, at the cage in No. 2 shaft, where mine posts and crossbars are being piled, desires that the cage be placed in a certain position. Accordingly, he hurries to the telephone to give the engineer the necessary instructions.

Ringling the 'phone, he says: "Hello, John!—say, lower that cage about ten feet, will you?" By mistake the hoisting engineer at the other shaft receives the message and, as he has the same first name, he lowers his cage in accordance with the shaftman's request. This occurs just as men are stepping upon the cage. A serious accident may easily occur.

### ONE WAY TO AVOID MIXING MESSAGES

If, however, the top and bottom cagers of one shaft could not possibly talk to the hoisting engineer at the other and could talk to their own engineer only by first throwing a cutout switch and if the engineer of either shaft could get onto the main telephone line only by means of a special cutout switch, the danger of the footman, or shaft tender, calling the wrong engineer by mistake would be obviated. With an arrangement of this kind there would be no possibility of the wrong engineer getting the signal, and no accident such as that just delineated could occur.

Realizing the danger of present conditions, C. W. Watkins, a hoisting engineer of the Glen Alden Coal Co., has designed a simple switch that always keeps the hoist drivers' telephone connected directly to that of the footman and the shaft tender. No one else about the mine can get onto this line without his intentionally allowing them to do so. This device obviates all possibility of confusion and misunderstanding of directions given over the telephone or of such instructions being received by some person for whom they were not intended. Furthermore, with an arrangement of this kind the line is always kept clear for the hoisting engineer and the footman to talk without having other people "butt in." Such interventions make it difficult for the two people to misunderstand each other.

In the accompanying illustrations Fig. 2 is a diagram of the connections. This layout, however, goes further than has been described above, as the office of the superintendent is connected with the mine fore-

man's office in such a manner that the two may talk without anyone else being able to "butt in" or listen in on the line.

As the shaft stations are completely disconnected from the main line and form an independent circuit of their own, they are naturally disconnected from the superintendent's office and that of the mine foreman. Consequently some arrangement should be provided whereby both of these officials may connect with this line. This gives the further advantage that these officials may be connected with the private line down the shaft, so that in case of accident or trouble the superintendent and mine foreman can have a private line leading to the main points of entry to the mine.

The switches in the superintendent's and mine foreman's offices are so arranged that when the 'phones here installed are connected to the mine telephone line they are disconnected from the shaft line. When it is desired to get a connection to the shaft line, it is only necessary to push down the connecting lever at the 'phone. This immediately disconnects the instrument from the main line while connecting it to the shaft line. Furthermore, these officials can get connected to only one of the shaft lines at a time, so that there will be no danger of having the two shafts on the same line simultaneously. As a result, there can be no confusion of signals to the engineers, with the usual hazard incident thereto.

It is obvious that neither the foreman nor the superintendent nor anyone in their offices would undertake

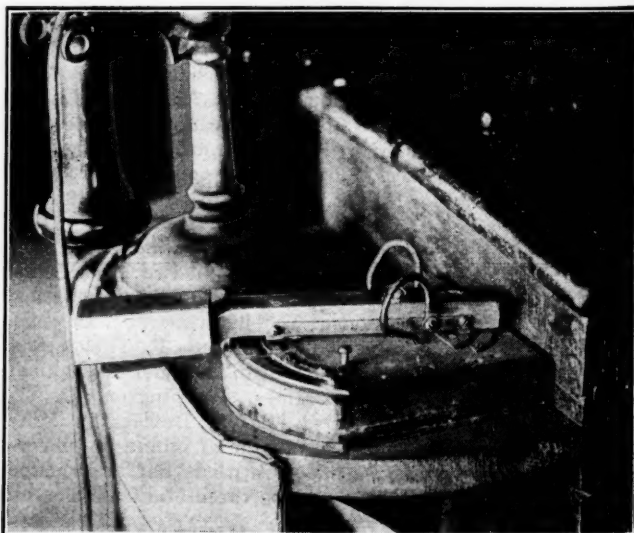


FIG. 1. SWITCH USED AT ONE OF THE PETTEBONE SHAFTS

Switch is so set that it is always connected to the shaft head and shaft stations. Should the engineer or someone else desire to talk on one of the mine lines the engineer must press down the lever to make the proper connections.



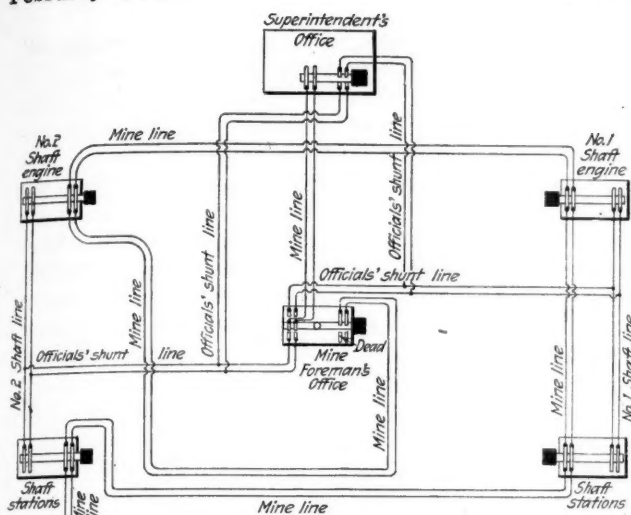


FIG. 2. SUGGESTED WIRING PLAN FOR PLANT WITH TWO HOISTING SHAFTS.

A direct line connects each engineer with the footmen and top-men of his shaft, but not with those of the other shaft. The mine line is connected only on the pressing of a lever by the engineer. By pressing levers the superintendent and mine foreman can talk to either of the shaft stations and to the hoist driver, but they cannot be connected to the mine line and shaft line at one and the same time. They cannot, moreover, connect themselves with both shafts simultaneously and consequently messages cannot go astray.

to direct the movement of the cage from any point save the landing. Consequently their ability to connect themselves with the shaft line is not fraught with any appreciable danger. But the Glen Alden Coal Co. management, while disposed to believe that the wiring plan shown is an improvement on current practice, feels that it would be still safer if each shaft line were wholly independent of all other lines whatsoever, though it would not object to a provision by which the engineer could connect himself with the mine line when he so desired.

In placing telephone wires in a mine great care should be taken to see that these conductors are kept as far apart as is conveniently possible; also that they are well insulated so that there may be no danger of their getting crossed. A good example of the danger resulting from crossed wires occurred at a certain anthracite colliery a few months ago. One Sunday the hoisting engineer was sitting in the doorway of his engine house when he received a signal to lower the cage. This, of course, he immediately obeyed. Hardly had the cage been lowered, however, when a man from the head of the shaft rushed over and demanded why the cage had been lowered when no signal had been given. Fortunately, two men had been talking with the engineer when the signal was received. They also heard it. Luckily no accident had occurred. It was discovered later that the difficulty arose from crossed wires.

Much responsibility always rests upon the hoisting engineer, as the life of every underground employee is in his hands usually at least twice each day. As a result, every possible precaution should be taken that errors in signals may be avoided, regardless of whether such errors result from misunderstandings of the signal code or from the receipt of instructions intended for some other person.

IN THE STATE OF TENNESSEE, through a co-operative agreement with the State Geological Survey, the sampling of coal mines has begun by an engineer of the Bureau of Mines.

## Clean Vancouver Island Coals By Flotation Process\*

Ten Pounds of Oil Usually Enough to Float a Ton—  
Only Gasoline Fails to Give Froth—  
Oil Chosen to Suit Coal

By P. E. PETERSON

THE writer has carried on some experimental work to test the suitability of the flotation process for the cleaning of Vancouver Island coals. For the most part, samples and washery products obtained from the Douglas seam were used in these tests. For the laboratory experiments a Janney flotation test machine was used. Larger tests were made with a Peterson cell 8 ft. 6 in. in diameter, having an approximate capacity of fifty tons per twenty-four hours. The results of the work show that on the material tested good recoveries of clean coal can be made by flotation.

The flotation process makes its separation by relying on the specific gravity of the substance to be floated, although in floating coal advantage is taken of the difference in specific gravity of coal and its impurities. The process depends rather on the formation in a watery pulp of an oily froth that has an affinity for the coal or carbonaceous substances. A flotation machine is an apparatus that by violent agitation or aëration produces a suitable froth from a proper mixture of oil, water and pulp, and by an arrangement of mechanical skimmers or launders removes the froth from the surface of the watery pulp and thus effects a separation of the mineral.

Almost any oil will give good results in flotation. Of all the oils tried, only gasoline failed to give a froth. In general the wood oils, such as wood creosote, pine oils, tars and turpentine, give good voluminous froths, and mineral oils, such as crude petroleum, coal tar, coal-tar creosote and kerosene, produce heavily loaded compact froths. Organic oils, such as castor oil, yield froths similar to those obtained with the mineral oils.

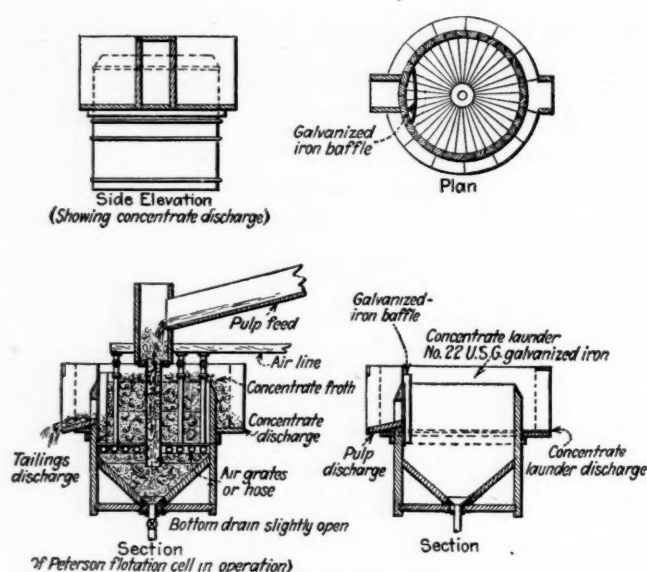
### CHOICE OF OIL DEPENDENT ON COST

Which oil shall be selected greatly depends on its cost, on the size of the coal particles to be floated and on the type of flotation machine used. Some machines, as, for example, those of the mechanically agitated skimmer type, are perhaps best suited for operation with a heavily loaded compact froth. Machines of the sub-aërated type, such as the Callow cell, operate best when the froth is voluminous.

Froths of any character required can be obtained by the mixing of wood and mineral oils in various proportions. The selection of an oil mixture depends greatly on the nature of the coal to be treated. This is especially true of Vancouver Island coals, in which, apparently, the ash is inherently different in the several coal fields. The separation of low-ash products requires the application of selective flotation methods, such as a limited amount of oil and repeated recleaning of concentrates. The best results were obtained when using an oil mixture that produced a voluminous froth.

The amount of oil needed varies somewhat with the dilution of the pulp. A dilute pulp containing 95 per cent of water will require about one-third more oil to float a given quantity of coal than a pulp containing

\*Article entitled "Notes on Coal Flotation," prepared for presentation at the annual general meeting of the British Columbia Division, Canadian Mining Institute, February, 1922.



#### PETERSON FLOTATION CELL

The coal pulp is dropped into the bottom of the cell and air is added. A heavy oily froth, black with coal particles, is formed, which passes over a weir. With flotation the stiff froth lifts the coal above the slate so readily that the coal and tailings discharges can be made at levels further apart than with jig washing. Not only is coal lighter than slate but it is more readily carried by the froth and would still be so carried were it even heavier than the slate.

75 per cent of water. The actual weight used also varies with the kind of oil, but in general 10 lb. of oil is all that will be required to float a ton of coal, and in some cases 2 lb. of oil per ton of coal floated will be enough.

All sizes of coal and carbonaceous material passing through a ten-mesh screen are effectively lifted by the froths. In copper flotation, sizes coarser than 40-mesh will not very readily be lifted by the froths. This large difference in the size of the coal particles and the metaliferous minerals that will float is explained by their difference in specific gravity, that of coal being 1.4 as against about 4.3 for chalcopryrite.

#### DEGREE OF GRINDING DEPENDS ON COAL'S QUALITY

The fineness to which the material must be ground for flotation depends entirely on the nature of the coal to be treated. Material low in coal, such as washery refuse, requires fine grinding for the greatest recoveries. To insure a good recovery of clean coal from waste products containing 50 per cent ash or over it is necessary to grind the material sufficiently fine to pass through a 100-mesh screen.

Cleaner coals are recovered when working with dilute pulps. The ordinary dilution of 75 per cent water gives a dirty coal, but if from 90 to 98 per cent water is used clean coals are readily obtained. This is no doubt due to the clay, which forms a large proportion of the rock in coal. When ground with water it makes a colloid that is very slow in settling, and is thus carried in the float along with water in the froth.

Either fresh or salt water may be used without affecting the result. Economy in the use of oils is

obtained by adding them to the pulp in a mixing cell before they go to the frothing cells. In fact, it is difficult to obtain uniform results in pneumatic cells unless the oils have been thoroughly mixed with the pulp prior to flotation. In all tests cold water was used, its temperature running from 7 deg. C. to 10 deg. C.

The above tests show the variation in recovery with the varying ash content of the cleaned coal. In making a coal having 13.16 per cent ash, 11.90 per cent of the jig rock is recovered, whereas when making a coal having 26 per cent ash there is a recovery of 29.2 per cent.

TABLE II. FLOTATION TEST ON MINE SCREENINGS.

Product	Recovery Per Cent Total Weight	Per Cent Ash
Heads.....	100.00	24.15
Concentrate No. 1.....	96.60	22.50
Concentrate No. 2.....	90.50	20.80
Concentrate No. 3.....	87.10	19.40
Concentrate No. 4.....	86.40	19.07
Concentrate No. 5.....	83.00	18.20
Concentrate No. 6.....	78.50	17.00
Concentrate No. 7.....	74.80	16.00
Concentrate No. 8.....	72.10	15.50
Concentrate No. 9.....	69.40	14.70
Concentrate No. 10.....	66.20	14.20
Concentrate No. 11.....	54.70	11.80

Thus, if a coal of 17-per cent ash content is desired, Table II shows that 78.5-per cent recovery can be obtained. Table III is a summary of the results obtained when treating materials of varying ash content.

TABLE III. PER CENT WEIGHT OF COAL RECOVERED IN CONCENTRATE.

Material Tested	Per Cent Ash	Per Cent Total Weight 11% Ash	Per Cent Total Weight 12% Ash	Per Cent Total Weight 13% Ash	Per Cent Total Weight 14% Ash	Per Cent Total Weight 15% Ash	Per Cent Total Weight 16% Ash
Jig rock.....	50.00	10.4	12.0	13.0	14.1	15.0	16.3
Jig rock.....	40.00	22.5	24.5	27.0	29.5	32.0	34.5
Bone coal.....	32.90	37.0	40.0	43.1	47.1	51.1	55.0
Fines in sludge- tank overflow.	29.35	43.0	47.0	51.0	55.0	60.2	65.1
Mine screenings.	24.20	49.5	54.5	60.2	65.0	71.1	75.0

The principal features of this cell are its simplicity, low cost and ease of installation. It requires practically no attention. The water level can be varied at will and will remain at any set point until changed. The spigot discharge from the bottom of the cell effectively prevents banking. Per unit of cross-sectional area the capacity is as great as in any other cell.

Flotation is best suited to the recovery of coal from fine material. The cost of cleaning coal by the flotation process is greater than that of washing it in jigs or on tables; and naturally the latter method when applicable will continue to be employed in preference to the use of flotation. Coal-washing tables are an effective means of cleaning coal coarser than 60-mesh, and it is only with sizes finer than this that flotations will be useful.

#### FLOTATION USEFUL IN RECOVERY OF FINE COAL

The flotation process will not revolutionize the present practice of coal washing, but it will serve as a useful adjunct in recovering the very fine coal from slimes that are produced in the present practice. In the saving of coal from washery waste where it is necessary to grind the material, flotation in conjunction with coal tables will be the principal means of effecting the recovery.

On account of the extreme fineness of flotation coal, it is necessary to dewater it by means of Dorr thickeners and filters. The dewatered product from the filters is then mixed with other sizes and sold to the users of pulverized coal.

TABLE I. FLOTATION TEST ON JIG ROCK.

Product	Recovery Per Cent Total Weight	Per Cent Ash
Heads.....	100.00	50.00
Concentrate No. 1.....	44.60	29.00
Concentrate No. 2.....	29.20	26.00
Concentrate No. 3.....	23.20	22.40
Concentrate No. 4.....	19.20	19.88
Concentrate No. 5.....	14.15	14.34
Concentrate No. 6.....	11.90	13.16



## Using Proper Inspection and Repair Forms, No Detail Is Likely to Be Overlooked

BY H. H. JOHNSTON\*  
East Pittsburgh, Pa.

THE forms employed for reporting the inspection of machines, particularly mine locomotives, are almost as numerous as the operations at which they are used. As a rule such forms are made up to suit the individual mine operator's ideas and no two are exactly identical. Some employ a blank on which the inspector or repairman merely makes check marks or fills in dates in the proper spaces to show when various pieces of apparatus were inspected or repaired. Others require not only this but also that specific written statements be made concerning the nature of the inspections, repairs and renewals performed.

Two forms employed for recording the inspections of mine locomotives are presented herewith. These represent types that I have observed in most frequent use. The first of these tabulates in some detail the various elements composing a mine locomotive and the equipment mounted thereon. Inspections are given the machine at regular intervals. At such times not only the lubrication of the various parts is attended to but the condition of all other details must be examined and necessary repairs made thereto. In the report form mentioned it will be observed that on Mondays and Thursdays these notes are more full and complete than on other days, which indicates that more rigid inspections were made on those days.

### REPAIRMAN REQUIRED TO DO LITTLE WRITING

Another form employed in making inspection reports requires merely a check mark in the proper place under each heading, differentiation being made in the cleaning, lubrication, repair and renewal of the various parts. This blank requires but little writing on the part of the repairman. In preparing such a form it is well to leave space for remarks. It is of marked advantage to the store-keeper to have these reports properly kept, for if this is done he can estimate accurately in advance, from time to time, what material will be needed and

Loco. Ser. #	INSPECTION AND REPAIR RECORD						Date	1921
Apparatus	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Remarks	
Trolley Type B-1	Inspected	Inspected	OK	OK	Inspected	OK		
Wheel	OK	OK	OK	OK	OK	OK		
Warp	OK	OK	OK	OK	OK	OK		
Pole	OK	OK	OK	OK	OK	OK		
Base	OK	OK	OK	OK	OK	OK		
Controller Type C-1	Inspected	Inspected	OK	OK	Inspected	OK		
Handles	OK	OK	OK	OK	OK	OK		
Main Drum	OK	OK	OK	OK	OK	OK		
Main Fingers	OK	OK	OK	OK	OK	OK		
Rev. Drum	OK	OK	OK	OK	OK	OK		
Rev. Fingers	OK	OK	OK	OK	OK	OK		
Grid Rectifier Type E-1	Inspected	Inspected	OK	OK	Inspected	OK		
Grids	OK	OK	OK	OK	OK	OK		
Tie Rods	OK	OK	OK	OK	OK	OK		
Motors Type D-1	OK	OK	OK	OK	OK	OK		
Frames	OK	OK	OK	OK	OK	OK		
Commutators	OK	OK	OK	OK	OK	OK		
Brushes	OK	OK	OK	OK	OK	OK		
Air Bearings	OK	OK	OK	OK	OK	OK		
Air Bearings	OK	OK	OK	OK	OK	OK		
Spindles	OK	OK	OK	OK	OK	OK		
Pinions	OK	OK	OK	OK	OK	OK		
Gear Cases	OK	OK	OK	OK	OK	OK		
Driving Springs	OK	OK	OK	OK	OK	OK		
Driving Boxes	OK	OK	OK	OK	OK	OK		
Wheels	OK	OK	OK	OK	OK	OK		
Axles	OK	OK	OK	OK	OK	OK		
Brakes	OK	OK	OK	OK	OK	OK		
Shoe	OK	OK	OK	OK	OK	OK		
Rigging	OK	OK	OK	OK	OK	OK		
Slide Frame	OK	OK	OK	OK	OK	OK		
Bumpers	OK	OK	OK	OK	OK	OK		
Time to Inspect & Rep.	1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM	6:30 PM		
Repairman	Master Mechanic						Storekeeper	

**RECORD OF INSPECTION AND REPAIR OF LOCOMOTIVE**  
This type of record requires more clerical ability than that which follows, but when properly kept gives information of great value.

\*Westinghouse Electric & Manufacturing Co.

Loco. Ser. #		Locomotive Inspection Report							Date	to	1921
		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday				
Trolley	OK	OK	OK	OK	OK	OK	OK				
Warp	OK	OK	OK	OK	OK	OK	OK				
Pole	OK	OK	OK	OK	OK	OK	OK				
Base	OK	OK	OK	OK	OK	OK	OK				
Controller	OK	OK	OK	OK	OK	OK	OK				
Handles	OK	OK	OK	OK	OK	OK	OK				
Main Drum	OK	OK	OK	OK	OK	OK	OK				
Main Fingers	OK	OK	OK	OK	OK	OK	OK				
Rev. Drum	OK	OK	OK	OK	OK	OK	OK				
Rev. Fingers	OK	OK	OK	OK	OK	OK	OK				
Grid Rectifier	OK	OK	OK	OK	OK	OK	OK				
Grids	OK	OK	OK	OK	OK	OK	OK				
Tie Rods	OK	OK	OK	OK	OK	OK	OK				
Motors	OK	OK	OK	OK	OK	OK	OK				
Frames	OK	OK	OK	OK	OK	OK	OK				
Commutators	OK	OK	OK	OK	OK	OK	OK				
Brushes	OK	OK	OK	OK	OK	OK	OK				
Air Bearings	OK	OK	OK	OK	OK	OK	OK				
Air Bearings	OK	OK	OK	OK	OK	OK	OK				
Spindles	OK	OK	OK	OK	OK	OK	OK				
Pinions	OK	OK	OK	OK	OK	OK	OK				
Gear Cases	OK	OK	OK	OK	OK	OK	OK				
Driving Springs	OK	OK	OK	OK	OK	OK	OK				
Driving Boxes	OK	OK	OK	OK	OK	OK	OK				
Wheels	OK	OK	OK	OK	OK	OK	OK				
Axles	OK	OK	OK	OK	OK	OK	OK				
Brakes	OK	OK	OK	OK	OK	OK	OK				
Shoe	OK	OK	OK	OK	OK	OK	OK				
Rigging	OK	OK	OK	OK	OK	OK	OK				
Slide Frame	OK	OK	OK	OK	OK	OK	OK				
Bumpers	OK	OK	OK	OK	OK	OK	OK				
Time											
Repairman		Master Mechanic						Storekeeper			

### INSPECTION REPORT INVOLVING LITTLE WRITING

A man with dirty hands and much to do and a short time to do it in is likely to prefer the opportunity here given to use checkmarks instead of words. With these he can say more than in the previous table, though less space will be used.

what and how many parts should be carried in stock for making repairs to equipment.

Though it is far preferable to have such forms as these printed and each pad provided with the necessary carbons for making the desired number of copies, blanks may be made up for temporary use by blueprinting. In fact if the number of machines to be inspected is small, blueprinted forms may sometimes be used to advantage as a regular practice. As each form shown above covers a week's inspection and repair to a locomotive, preparation of such blanks would hardly overtax the average mine blueprinting apparatus.

## IF —

(From the Miner's Safety and Health Almanac, issued by U. S. Bureau of Mines, Washington, D. C.)

IF he had worn goggles and protected his eyes, he would not be blind.

If he had obeyed the safety-first rules posted up all over the mine, he would not have lost his hand.

If he had not lighted the match in gas, the mine explosion would not have occurred.

If he had only left alcohol alone, he would not have disgraced himself and ruined his health.

If he had not tried horseplay on the cage, he would not have been hurt.

If he had tested his roof, he would not have been killed by the fall of rock.

If he had watched his step, he would not have fallen down the ladder.

If he had used common sense, he would not have opened a can of powder with a pick.

If he had not lost his temper, he would not have lost his job.

If he had only been careful, neither he nor his fellow workers would have been injured.

If he had known first-aid work, he could have saved an injured comrade's life.

If he had consulted a doctor in time, his health might have been saved.

Of course, some risks are necessary, but how much loss and remorse a habit of caution and a pair of wide-open eyes would save miners?—Adapted from "If —," by Dr. Frank Crane.

## Growing Need for the Preservation of Mine Timbers\*

Coal Mines Use Underground Two and Half Billion Board Feet of Timber Annually — Timber Cost Per Foot in Anthracite Region Is Four Times That in 1905 — Use Timber Three to Four times as Fast as It Grows

BY R. R. HORNER†

IN 1905 the U. S. Forest Service,<sup>1</sup> in co-operation with the U. S. Geological Survey, collected from a large number of coal and metal mines in the United States statistics on timber consumption, which was the first systematic attempt in that direction. Though these statistics were by no means complete, so many representative mines were covered that on the data obtained a fairly accurate estimate of the total timber used by the mining industry could be made.

Following is a summary of the quantity of timber, both round and sawed, used in the production of various kinds of minerals in 1905:

	Cu.Ft.
Bituminous coal .....	103,042,200
Anthracite coal .....	62,110,166
Precious metal ores .....	29,028,333
Iron ores .....	14,644,750
Miscellaneous ores .....	3,038,616
Total Cu.Ft. ....	201,864,565

Of the total timber consumption 82.2 per cent was round timber and 17.8 per cent sawed timber. The percentage of the various kinds of timber was: Soft wood, 30.3 per cent; hardwood, 47.7 per cent, and not specified, 21.9 per cent.

Since 1905 no systematic attempt has been made to collect mine-timber statistics; however, a number of unofficial estimates, based upon the above-mentioned data, have appeared from time to time in the technical press showing the mine-timber consumption in the coal and metal mines. Perhaps the most reliable of these estimates and the one most nearly approaching the truth was made by F. K. R. Moll in 1915 in an article entitled "Preservation of Timber in Mining."

Moll bases his estimate upon the production of coal, iron and other minerals for that year and the average amount of timber used per ton in their production. His figures show a timber consumption of 260,000,000 cu.ft., which is 28.8 per cent more than the consumption in 1905.

In the absence of any authentic mine-timber statistics and in order to show relatively the quantity now being used annually by the mining industry, an estimate will be made based upon the mineral production for 1919 and the average quantity of timber used per ton of coal and ore mined. The figures representing the quantity of timber used per ton of the various minerals mined have been obtained from various sources and are thought to be fairly representative.

However, it should be remembered that timber consumption varies greatly, depending upon the kind of mineral being mined, the nature of the deposits, the methods of mining, etc., and may vary widely even in mines in the same locality producing the same kind of minerals.

The mineral production for 1919 is given in round figures in the preliminary reports of the U. S. Geological

Survey as 458,000,000<sup>2</sup> tons of bituminous coal, 88,000,000 tons of anthracite, 68,300,000 tons iron ore, and is estimated at approximately 65,500,000 tons for other ores. Of the 68,300,000 tons of iron ore, approximately 35,000,000 tons, or 51.4 per cent, was mined from underground workings requiring timber and the remainder from open pits in which little or no timber is used.

The average quantities of timber used per ton of mineral mined, taken from the most reliable sources available, are 0.33 cu.ft. per ton for bituminous coal, 0.70 cu.ft. for anthracite, 0.90 cu.ft. for iron ore (underground mining), 0.75 cu.ft. for other ores—gold, copper, lead, zinc, etc.

Based upon the above-mentioned figures of production and timber used per ton, the consumption of mine timber in 1919 is as follows:

	Tons (2,000 Lb.)	Cu.Ft. Timber per Ton	Total Cu.Ft.
Bituminous coal .....	458,000,000	x 0.33 =	151,140,000
Anthracite coal .....	88,000,000	x 0.70 =	61,600,000
Iron ore (shaft) .....	35,000,000	x 0.90 =	31,500,000
Other ores (est.) .....	65,500,000	x 0.75 =	49,125,000
Total .....			293,365,000 cu.ft.

This shows an increased timber consumption over 1905 of about 92,000,000 cu.ft., or nearly 46 per cent.

One of the serious problems that now confronts the mine operator in the important coal- and metal-mining regions in both the East and West is the noticeable decrease in the adequacy of the supply and in the quality of the timber of many mining regions; coupled with marked increase in cost.

In 1905, according to government statistics,<sup>4</sup> of the 43,676,000 cu.ft. of round timber used in the anthracite mines, the hardwoods rank first, with 14,238,000 cu.ft., or 32.6 per cent, of which more than 5,000,000 cu.ft. was oak, the remainder being mixed hardwood—chestnut, beech, maple, etc.

Of the 9,828,000 cu.ft., or 22.5 per cent, of soft wood reported, 8,349,000 cu.ft. was yellow pine, the remainder being hemlock and spruce in the order named. It should be stated, however, that the kind of round timber reported was not specified for nearly 20,000,000 cu.ft., or 45 per cent of the whole quantity used.

Much of the yellow pine was shipped from the South, but most of the other timbers used were obtained in Pennsylvania. During the same period the average cost of round timber was 6.6c. per cubic foot and sawed timber \$15.17 per M board feet. Assuming the consumption of 0.7 cu.ft., the cost per ton of coal was 4.6c.

At the present time perhaps 75 per cent or more of the timber used in the anthracite region is soft wood—loblolly and second-growth yellow pine—most all of which is shipped from the South. No general cost of this timber is available, but figures obtained from one of the large operators show a cost approximately 27.5c. per cubic foot delivered, of which 42.7 per cent represents the cost of the timber and 57.3 per cent the cost of

\*Paper presented on Jan. 25 at the annual meeting of the American Wood-Preservers' Association, Chicago, Ill.

†Mining Engineer, Bureau of Mines.

<sup>1</sup>Forest Service Circular 49, U. S. Department of Agriculture.

<sup>2</sup>Mining and Scientific Press, vol. 110, p. 68, 1915.

<sup>3</sup>All figures are in short tons of 2,000 lb.

<sup>4</sup>Forest Service circular 49.



freight. The cost of timber per ton of coal mined is 19.2c. It may thus be seen that during the period of fifteen years from 1905 to 1920 the cost of round mine timber delivered in the anthracite region has increased from 6.6 to 27.5c., or more than four times.

No recent figures indicating the quantity and cost of timber used in the bituminous coal regions of the East and Middle West are available, but it is reasonable to assume that the same relative increase will obtain as shown in the anthracite region.

From the foregoing discussion of the mine-timber consumption and cost in some of the principal mining districts in the United States it is plainly obvious that one of the rapidly increasing items of expense in mining operations is the cost of timber, to say nothing of the labor cost of installation. Therefore any practical means that may be employed to prolong the life of mine timber will greatly reduce mining costs and effect important economies in operation.

The rapid depletion of our forests and the far-reaching effect it may have on our industries as well as our national welfare have been repeatedly pointed out by those who have made an intimate study of the problem.

According to statistics published in the *American Forestry*<sup>5</sup> the consumption of timber for all purposes in the United States in 1919 was approximately 7,600,000,000 cu.ft., requiring in its production 23,600,000,000 cu.ft.

At the present rate of consumption it is estimated that three to four times as much timber is being consumed per annum in this country as is being produced by forest growth, and unless some measures are taken to arrest it the exhaustion of the better grades of structural timber may be expected in the not distant future.

#### DECAY AND INSECTS LEAD IN DESTRUCTION

Moreover, the cost is mounting from year to year, as a result of the rapid depletion of the better grades. Naturally, the use of the better woods is being curtailed wherever possible, and the inferior and less durable woods substituted, which have only cheapness and availability to recommend them. The consumer, therefore, is confronted by the serious problem of having effectively and cheaply to prolong the life of the inferior woods and thus conserve the timber supply.

Mine timbers are destroyed by four principal agents—decay, insects, fire and mechanical abrasion. Of these, decay and insect attack are by far the most important. The amount of mine timber destroyed by these different agencies varies greatly with the conditions in the mines, and depends largely upon the character of the deposit and method employed in mining it.

In general more than 50 per cent of the timber used in the mines is destroyed by decay and insect attack, but perhaps not to exceed 15 per cent of the total is subject to replacement, that is, where the working place will be kept open longer than the natural life of the timber.

Timber conservation may be accomplished in part by the better selection, preparation and storage of timber intended for mine consumption, but the most effective means is by treating the timber, to prevent decay, with some standard preservative before it is placed in the mine.

It is needless to point out that only those timbers should be treated that will be used in working places which are to be maintained for a period of years suffi-

ciently in excess of the natural life of the timber to warrant the use of treated timber. Neither should treated timber be used in places where it would be subjected to destruction by crushing rather than by decay.

It is estimated that on an average possibly 85 per cent of all the timber employed annually in the mines in this country is used in working places of only temporary nature, such as rooms in coal mines and stopes in metal mines that will soon be worked out and abandoned. Much of this timber is destroyed by crushing or covered up by waste rock and is of no further service.

#### NEW OR MODIFIED MINING SYSTEM SUGGESTED

Even where subjected to decay its natural life usually is greater than its mechanical life, therefore preservative treatment would not be justified. The only practical means of reducing the quantity of timber used in this manner would be either to modify the existing system of mining or adopt an entirely different system, wherein less timber is required.

Of the enormous total of approximately 293,000,000 cu.ft. of timber consumed annually in the mines it may be safely estimated that an average of 15 per cent, or 43,950,000 cu.ft., is used in underground haulageways, airways and other openings of a more or less permanent character where the timber is largely destroyed by decay.

Experience has shown that the average life of mine timber in permanent openings, where it is not subject to crushing, is about three years, but often under conditions unusually favorable to decay the life will not exceed one year. Assuming that the average mine shaft, tunnel drift and gangway will be in service for a period of twelve years, it may be seen that the timber supports will be renewed at least three times, and under some conditions five to ten times.

#### INCENTIVE TO THE USE OF PRESERVATIVES

If the minimum figure is taken the quantity of timber consumed during the 12-year period is 175,800,000 cu.ft., of which 131,850,000 cu.ft. might have been saved had the original timbers been given a preservative treatment. If the average cost of the timber be taken at 25c. per cubic foot the saving in timber alone would be \$32,962,500. The labor cost in replacing would be equal to and in many instances much more than the cost of the timber. It is obvious, therefore, that by treating timber to prolong its life the annual saving in cost of labor and timber will be large.

In the foregoing estimate of the annual consumption and value of mine timber no account was taken of the relatively large quantity of timber used in surface construction. Unfortunately, no data are available upon which to base even an approximate estimate of the quantity of timber thus used. Obviously, however, the quantity is large, as may be appreciated by citing some of its many uses.

The principal surface structures built wholly or in part of wood are headframes, shaft houses, breakers, tipples, tramways, ore bins, coal bunkers, trestles, flumes, concentrating mills, stamp mills and mine buildings—comprising timber-framing and carpenter shops, blacksmith shops, machine shops, power houses, change houses, supply houses, etc.

In addition, an important amount of lumber and dimension timber is used in miscellaneous mine and mill equipment such as mine cars and trucks, tanks, launders, conduits, concentrating tables, jigs, flotation

<sup>5</sup>*American Forestry*, March, 1920, p. 143.

machines, classifiers, battery blocks, foundation timbers, etc.

These structures and equipment require constant repairs and replacements, of which perhaps 80 per cent or more is caused by decay and could be largely avoided if the original timber were given a preservative treatment.

The average life of untreated wooden surface structures is placed at ten to twelve years; however, the average life of timber entering into mine and mill equipment subjected to replacement from decay probably is not over six to eight years. Assuming the average period of usefulness of all kinds of mine construction is twenty years, then the timber subjected to decay will require replacement at least once during its period of service in the case of surface structures, and twice in case of mine and mill equipment.

With proper preservative treatment of the original timber entering into this construction it could be made to last throughout the entire period of service, thus effecting an important saving in the cost of material and labor.

To determine the advisability and economy of treating underground timber, also timber used in surface structures and equipment Barth<sup>6</sup> formulated the rule which is substantially as follows: Timber that is permanent in character—that is, which is not exposed to destruction by mechanical wear or crushing before the expiration of its natural life or the usefulness of which does not cease before the advantages of chemical preservation can be realized—should be treated.

#### TIMBER TREATMENT MUCH USED IN GERMANY

In Europe, particularly Germany, treated timber has been extensively used in the mines for many years, and in 1915, according to Moll,<sup>7</sup> no less than 100 large and small timber treating plants for mines had been erected. In 1904 there were in the mining district of Dortmund, Germany, sixteen mines which treated timber and twenty-five others that had tried out preservatives.

About 1903 a commercial timber-treating company had entered the mining field and up to 1915 had erected over thirty plants in Silesia alone. However, in this country the mining industry has been slow to adopt the use of treated timber, notwithstanding that the replacement of timber caused by decay often constitutes one of the principal items of mining expense.

The explanation of this is that mining timber in most localities, until the last few years, has been plentiful and comparatively cheap. As a result no inducement was offered to practice economy in its use. Furthermore, mine operators in general have not been well informed concerning preservatives, treatment methods and costs, and the benefits to be derived from the use of treated timber, but as they come more and more to realize these benefits, its use, no doubt, will be rapidly extended.

In 1906 the Forest Service in co-operation with the Philadelphia & Reading Coal & Iron Co., undertook a series of experiments to test the practical value of treated mine timber, the efficiency of various preservatives, and the cheapest and most effective method of application for the purpose intended. Later this service was extended to include other coal-mining companies in the East and a few metal-mining companies in the West.

Although these experiments proved conclusively the

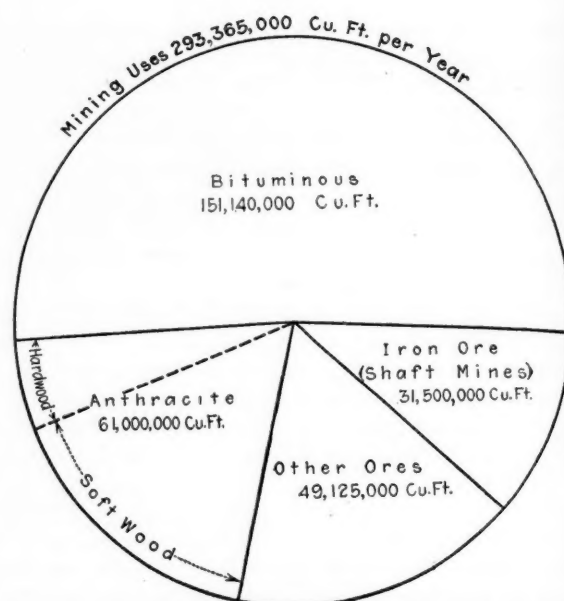


CHART SHOWING RELATIVE USE OF TIMBER IN MINES

About 72 per cent of all the timber used in mining is taken by coal mines, the bituminous regions using two-thirds of that percentage and the anthracite region the other third.

practical value and economy resulting from the use of treated timber, yet the co-operating companies have not increased its use to the extent that was anticipated, and the quantity used by them at present as compared to their total requirements is insignificant. Neither has timber preservation been generally adopted by the mining industry to the extent that the results of the experimentation had given reason to hope.

The reason for the lack of interest in timber preservation at that time was that the timber situation throughout most of the mining regions of the country was not sufficiently acute to cause the operators to consider seriously the benefits to be derived from its adoption. In brief the introduction of timber preservation into the mining industry was premature, consequently it languished for lack of support.

#### MOUNTING COSTS ENHANCE IMPORTANCE OF ECONOMY

However, in recent times, with mounting cost of production and the low price and lack of markets for the materials produced, the situation has entirely changed and mine operators are now ready to give serious consideration to any practical suggestion by which economies in operation may be effected.

The Bureau of Mines has only recently undertaken a systematic investigation of the decay of mine timbers and its causes and prevention. The bureau's observations to date have led to the conclusion not only that important savings in the cost of operation may be realized by the use of treated timber but also that preventing mine timber decay will remove one of the principal sources of heat and vitiation of mine air, which in turn has an important bearing on the problem of mine ventilation.

The mine operator is interested in timber preservation because the preservative treatment of mine timber to prolong its life will reduce operating costs, conserve the timber supply and make possible the utilization of inferior and less durable woods, which are practically useless unless treated to prevent rapid decay. In addition the use of treated timber to arrest decay promotes safety, health and efficiency of the men employed in the mines.

<sup>6</sup>Kurt C. Barth, *Engineering and Mining Journal*, vol. 104, 1917, p. 985.

<sup>7</sup>F. K. R. Moll, *Mining and Scientific Press*, vol. 110, 1915, p. 69.





# Problems of Operating Men

Edited by  
James T. Beard



## Miners Now and Forty Years Ago

Former Apprenticeship of Miners — Change in Conditions and Equipment Work Radical Changes in Qualifications of Miners—Pick Mining Gives Place to Machine Mining—Miner, Today, a Coal Loader

IN his letter, entitled "Miner in Twenty-Seven Days," *Coal Age*, Sept. 29, p. 495, "Mac." says: "In Canada, a man is not permitted to have charge of a place or work as a miner, until he has been employed as a mine laborer underground for at least a year."

Reading that statement made me think of old times back in the early eighties, when I went to the mines to make a miner of myself. It took twenty months to bring about the transformation. In the mine where I began to work, most of the men had to work as laborers for at least two years, before they were given places to work themselves.

### THE MINER AS AN APPRENTICE

I was placed in charge of a good miner and performed all kinds of work pertaining to the mining of coal. At the end of twenty months, I succeeded in getting a place of my own. When the boss told me, one night, to get some tools, that he had a place for me, I felt like shaking hands with myself over the good news.

When taking his first place as a miner, there is a wide difference in the qualifications of a man who has worked several months with an experienced miner, and one who starts with an experience of only twenty-seven days underground.

When I first began to dig coal by myself I knew reasonably well how to use the pick, set a boring machine, stand timbers and arrange and charge shots. It was some time, however, before I learned to have full confidence in my own judgment in doing these things. For many months I felt the need of the old miner's oversight and approval.

### MINING COAL FORTY YEARS AGO

That was forty years ago and we are living, today, so to speak, in a faster age. In those days speed in mining coal did not count for as much as it does now. Even the farmer hitched his horse to a vehicle and considered himself going some, if he drove forty miles in a day. With his high-powered car and improved roads, today, he covers that distance in less than an hour. Soon the speed of the automobile will be too slow and it will be ex-

changed for an airplane that can make a hundred miles an hour.

Neither the methods of making miners, nor the ways of mining coal and equipping the mines, practiced forty years ago, fit in with modern mining, today, and it would be useless to make the attempt to compare them. Coal mining, like every other enterprise, to be successful, must employ up-to-date scientific and improved methods of operation.

We need, today, modern trained men and officials who have kept apace with all the improved mining appliances, and have the ability to handle successfully the new type of miners. Those of us who are inclined to hold to the ways and methods of coal mining as we first learned them must recognize and accept these changes.

The present miner is not required to serve an apprenticeship of one or two years, as we did, in order to become efficient. He is not a pick miner but, instead, is skilled in the handling of mining machinery that the old miner knew nothing of. Mining machines, locomotives, and drilling and loading machines are being operated, today, by young men trained in their use.

### TODAY, THE PICK IS LAID ASIDE AND MINERS ARE COAL LOADERS

The present-day miner, in many instances, is nothing more than a coal loader. The coal is cut with a machine and broken down by shotfirers, while the timbering is done by timbermen. Nothing is left for the miner to do but to load the coal. The pick is not used to the same extent as formerly. Where the coal is not mined by machines it is shot from the solid without being mined with the pick.

Going back to the efficiency of the miner, there are two classes of men coming from the farm, the shop and other places to work in the mines. One of these classes is slow to learn and the men never acquire a working knowledge of mining, while those of the other class learn more quickly and make good miners.

The efficiency of a miner cannot always be gaged by the length of time he has worked underground. After all, it is the qualifications of a miner that count and some acquire these in a much shorter time than others.

Speaking in reference to miners keeping their working places tidy, some people are built that way naturally, while others are the reverse. Some miners take more care and pride in keeping up their places than others, and such places are safer and more convenient for work. There is a class of miners who never wash their faces clean, though they consume as much time in the operation as others who always appear clean and tidy.

### CHARACTER OF A MINER SHOWN BY HIS WORKING PLACE

During years of service as fireboss, in making my morning rounds, I have found miner's places with most of the timbers shot out, and the coal scattered back along the roadway and in the gob. The place would look like it had been struck by a cyclone. Go back to such a place at 10 o'clock, and you would find the miner moving slate and trying to get his coal out of the gob.

In other places where the natural conditions were the same, the timbers would all be standing and the shots would have just heaved out their burdens a few feet from the face. Of these two places that I have mentioned, the former was not always the young miner's place; it was as frequently the older miner's place. Tidiness belongs no more to the older miner than to a younger one.

In his letter, *Coal Age*, Nov. 10, p. 768, George Edwards makes this statement, "Years of experience do not make safe mine workers. Men who have mined coal all their lives are frequently less capable of safeguarding themselves than the man new on the job." I concur in the first part of this statement, but not in the latter. Surely, experience, in any calling, will not make men less capable of taking care of themselves than those without.

### THE WISE AND SAFE WORKER

Experience ought to make men capable; but neglect and carelessness will make them unsafe workers. The miner, old or new, who can ascertain unsafe conditions as they occur and who proceeds at once to make himself safe is the wise and safe worker. The old miner knows but may not heed, while the new miner would heed if he knew.

As our friend "Mac." says, if these new miners chance to get a place where the top is good and the coal will almost work itself they make things move. At such times, it is certainly amusing to listen to their talk, at the gathering places, after workhours, when they tell of the number of cars they have loaded during

the day; or if the cars run short hear them complain.

Such miners will often labor harder at these places than in the mines. Let a stranger be present who is not familiar with mine work, and will listen to anything told him about the mines, it is astonishing how much information these miners volunteer to give.

#### THE BOSS A "FINE FELLOW"

As long as this class of miner holds a good place, the boss is most generally a "fine fellow." But, let the place go to the bad so as to require hard work and skill to drive it, and you will hear the man complain how the boss is not treating him right; and soon the fellow quits and is gone, while another miner with nerve and judgment takes the place and does well.

In conclusion, let me say, the old miner who has gone through underground scenes and experiences, and fought and won many great battles there, with his pick and shovel, saw and timber, realizes there are still other battles to be fought and won in the mine. The old student miner is not very sure, today, that he knows much about mining. He realizes that there is much to learn and the necessary knowledge can only be acquired through technical training and study.

Dayton, Tenn. JOHN ROSE,  
Former District Mine Inspector.

#### Loose End and Solid Shooting

*Opposition to installing coal cutters hard to overcome—Law requiring employment of shotfirers wrought a change—Average miner not to be trusted in solid shooting.*

AT the time the Pennsylvania Law was written there was considerable feeling against shooting coal off the solid, as such practice was recognized as one of the most probable causes of mine disasters. However the law makers were face to face with a most difficult problem in attempting to pass a law that would compel the largest coal-producing districts in the state to install mechanical coal-cutting equipment in their mines.

The practice of open-end shooting off the solid had proven highly satisfactory for the preparation of coal for coke making. Furthermore, it was considered doubtful, at this time, as to whether the installation of electrical machinery would increase the safety of mining operations in a district that was both gaseous and dusty.

#### PASSAGE OF THE SHOTFIRERS' LAW

After much discussion a law was finally passed that has brought about the most modern methods of mining and recognized safe practice. Operators realized that if the blasting of coal was placed in charge of competent and reliable shotfirers who would follow recognized safe methods of shooting the greatest danger in blasting the coal would be overcome.

Solid-shooting districts were subjected to frequent rigid inspections. Opera-

tors were compelled to comply strictly with the requirements of the law relative to the employment of trained men for charging and blasting all holes drilled by the miners. The rules required using permissible explosives, clay for stemming, electric detonation, wooden tamping bars, etc.

After electric installations in the mines were made reasonably safe, practically every operation in the solid-shooting fields installed coal-cutting machinery. The result is that, today, in those districts, are to be found the most modern operations in the world. Since entering so largely on the campaign for mine safety, we frown on any practices that appear to encourage disaster and sooner or later, it would seem proper to insist on laws that permit the least possibility of human failure.

#### SHEAR OR SIDECUT SAME IN EFFECT AS LOOSE END

I believe it is generally recognized that a shear or sidecut is the same as a loose end, in the blasting of coal. Also, we consider that a shot that has a chance to work is ordinarily safe. It follows that a miner who has a due regard for safety can maintain a free end in driving rooms or drawing pillars, without always making a shear.

But, while we understand these things, let us not forget that the average miner of today has not reached a condition where he can be considered reliable in things involving his own personal safety and that of others. For this reason alone, it would be a dangerous law that would permit the average miner to be his own judge as to what constituted a "free end," in blasting; or expect him to follow safe practices where the opportunity is so great to take chances.

Taking every thing into consideration, my opinion is that the inspector who will not permit the ordinary miner to shoot coal from the solid is within the law.

To insure the greatest safety in mining coal that is not undercut, topcut or centercut, only competent shotfirers should be permitted to charge and blast the holes, in all places.

Pikeville, Ky. GEORGE EDWARDS.

#### Shooting Coal Off the Solid

*Conclusions often based on local conditions—Districts where solid shooting is unsafe—Cracker shooting—Windy and blownout shots—Electric firing—Conditions that require solid shooting.*

IN THE consideration of solid shooting and other questions pertaining to the operation of coal mines, safety of life should have the first place, and protection of property and production a second place. As one writer puts it (*Coal Age*, Aug. 25, p. 302), "The life of one miner is of more value than all the coal mined."

In another letter, Nov. 17, p. 806, William Crooks expresses a truth when he says, "Most all men, in expressing

their views on different subjects, are largely guided by their observance of local conditions and results." We see the danger, or at least we think we do, of certain acts performed under conditions familiar to us in other places. In other words, we are governed by the local conditions with which we are previously acquainted and which we have known to bring results. Again, I agree with the same writer when he says, "Where a proper regard is had for all rules, solid shooting is safe."

#### SOLID SHOOTING PRACTICED UNDER DANGEROUS CONDITIONS

With interest I note what Oscar H. Jones says in his letter, Nov. 3, p. 724, regarding solid shooting being permitted in a number of mines in his district. My own acquaintance with some of these mines leads me to say that I know of no other operations where solid shooting is practiced and the danger as great.

A few years ago cracker shooting was practiced in the same mines. Excessive charges of black powder were used and fine coal for tamping purposes. I had understood that the use of black powder had been abandoned in that district and a permissible explosive adopted, until I read Mr. Jones' letter. I agree with him in condemning the practice of using two grades of powder in the same charge, which should not be permitted in any mine.

#### POOR JUDGMENT IN PLACING SHOTS CAUSES MANY DISASTERS

In the same letter Mr. Jones very truthfully remarks, "Many mine disasters are caused by miners exercising poor judgment in placing shots and charging their holes." Let me add that the need of care and judgment, by miners, is not confined to mines where solid shooting is practiced, although in solid shooting a miner must use good judgment if he is to keep his place in proper shape.

Speaking of cracker shots takes me back, in memory, thirty years ago when miners driving narrow headings would cut out a "cracker" that had crushed the coal pretty well. Then, taking a long auger, they would bore two cracker shots, six or seven feet deep, in the face of the cut-out cracker, one shot near the bottom and the other toward the top. The shot it was desired to fire first was given the most powder. One or two sticks of dynamite were placed in the bottom of the charge.

There would be at least two heavy sideshots, which were planned to fire before the crackers. Think, for a moment, of the amount of explosives burnt in this narrow heading, in the space of about one minute, and the heat and gases produced. The miners fired twice a day, and the coal was rather dry and gave off some gas. Today, I would not stay in such a mine longer than it would take to get out.

Cracker shots should never be used in rooms, unless the coal is either mined or sheared. There is more excuse for the use of cracker shots in narrow



headings where the coal is too hard to be sheared or mined, and black powder or mixed charges should never be permitted. Nothing but a permissible explosive should be used, tamping the shot with clay.

#### DANGER IN POOR ARRANGEMENT OF SHOTS MORE THAN IN HEAVY CHARGES

Heavy coal shots when well arranged, and properly charged, are less dangerous than smaller ones that are improperly arranged and excessively charged, although more powder may be burned in the former than in the latter. In my experience, "windies" are not always produced by heavy shots; neither do blownout shots always cause "windies."

Some of the hardest "windies" I have ever felt were caused by small shots. I recall one instance where pillars were being drawn in coal that was about five feet thick with a divide about eighteen inches from the top. This upper coal would sometimes adhere to the top and have to be shot down. A miner, on the third pillar from where I was working, bored a hole about three feet deep in this topcoal and charged it with three or four inches of powder. The shot pulled down the coal nicely, but came near blowing us all out of the mine.

I have also observed that some well arranged and properly charged shots would pull their burdens even and nicely, but at times make "windies." It seems to me that atmospheric conditions may have much to do with causing windy shots.

#### EMPLOYMENT OF SHOTFIRERS

Writing on this subject, Oct. 20, p. 646, R. W. Lightburn thinks all shots where solid shooting is practiced should be fired by an electric battery, in the hands of a competent person, and after all the men have left the mine. Where shots are prepared by miners and left for shotfirers, there is a tendency on the part of the careless miner to overcharge a hole and use more powder than he would when doing his own firing.

In the employment of shotfirers, it is true, there is greater protection of life, but not always of property. In large mines the firing of all the shots at one time by a battery might become troublesome, though in my opinion there would be few, if any, blownout or windy shots.

#### SEVERAL SHOTS IN ONE PLACE SHOULD ALL BE FIRED AT ONCE

Take, as an illustration, a room giving off a little gas and rather dry and suppose there are four shots to be fired. If one of these shots is a tamping blower, the danger would not be as great when all the shots are fired at once, as it would be if this shot was fired immediately after the other three.

When a blownout shot projects its flame into a room, filled with cool air holding but little dust in suspension, the flame is cooled before it can raise the temperature of the room to the point of distillation. On the other

hand, if other shots fire first, in quick succession, the blownout shot projects its flame into a room filled with dust and gases and with a temperature already raised to a high point and an explosion is initiated.

But, getting back to the question of solid shooting, permit me to say that it makes but little difference how the term may be defined; the practice, in many mines, is here to stay. The size and nature of the coal, the irregular formation in many places, the expense of equipping for machine mining, the disuse of the pick, on the part of miners, for mining and shearing shots, as formerly, these together with the prospect of the mine not being more than a small and short-lived one, are sufficient in themselves to warrant the conclusion that solid shooting, in many places, will be continued, whatever may be said against it. That being the case, the only thing to be done in this respect is for local mine officials and inspectors to adopt and rigidly put in force, in such mines, rules and regulations concerning shooting that will insure the greatest safety.

#### KIND OF SOLID SHOOTING THAT IS SAFE AS SHOOTING A LOOSE END

What is generally defined as "solid shooting" if in charge of a practical miner is no more dangerous, in many respects, than shooting from the loose end of a pillar. The practical miner drives a room twenty or twenty-five feet wide in such shape as to have what miners call shoulders to shoot from. The shoulder gives a shot a good

chance to work and, in a true sense, the practice cannot be called solid shooting any more than shooting from the loose end of a pillar without mining the shot.

One writer remarks, Oct. 20, p. 645, "Several years ago nobody ever thought of shooting coal off the solid or dared to make the attempt." In the mine where I first began to work no coal was shot from the solid. Every miner was required to keep a cutting near the center of his place. The boss came around often to see that each miner had this cutting and what kind it was. I worked in that mine five years, and a new boss came who gave no attention to the cuttings, so that when I left the mine, as the boys would say, the coal was being "pulled out by the hair of the head."

In his letter previously mentioned, William Crooks refers to eight explosions, costing five or more lives, during the past ten years, all having occurred in machine-cut mines, in Alabama. For the same period he states there had been none in mines practicing solid shooting. I do not know the proportion of solid-shooting mines to machine-cut mines in that state, but this statement ought to be convincing proof that solid shooting when properly supervised by state and mine officials, as in Alabama, is not as dangerous as many would make it appear. What is true of Alabama, in this respect, will apply to other states. To say that all coal shall be mined before shooting would be to close down many mines throughout the country.

Dayton, Tenn.

JOHN ROSE.

## Inquiries Of General Interest

### Horsepower of Steam Boilers

Horsepower in Steam-Boiler Practice Based on Evaporative Power of Boiler—Power Developed Depends on Rate of Generating Steam Rather Than on Heating Surface of Boiler

**K**INDLY explain the method of computing the horsepower of a steam boiler. My experience in a boiler-shop has led me to understand that the horsepower of a boiler is calculated from the amount of its heating surface, including both the shell and the tubes, or the entire surface exposed to the heat of the flame and gases of the furnace. Lately, however, I have been studying the subject and find that this is not the method employed by engineers in estimating boiler horsepower. I am anxious to get a clear understanding on this matter.

La Salle, Ill.

STUDENT.

It is common practice among boiler-makers to rate the power of their boilers according to the extent of heat-

ing surface, as this correspondent has stated. For plain cylindrical boilers, an allowance of from six to ten square feet of heating surface, per horsepower, is customary. In flue boilers, the allowance is from 8 to 12 sq.ft. of heating surface, per horsepower. Again, in return-tubular boilers, the allowance is from 14 to 18 sq.ft. of heating surface, per horsepower.

A little thought makes it clearly evident that this method of computation is far from accurate. It is found that, for the same type of boiler and the same heating surface, the actual power developed varies considerably, in practice. Moreover, the length of time a boiler has been in use, the care that has been given to it and the method of firing, all affect its evaporative power.

The accumulation of scale on the inside of the boiler and the coating of rust and dirt in the tubes also reduce the capacity of a steam boiler to produce power.

For these reasons, engineering practice has adopted a standard method of computing the horsepower of boilers. This method is based on the capacity of a boiler for generating steam. The standard boiler horsepower adopted is the evaporation of 30 lb. of water, per hour, from a feed-water temperature of 100 deg. F., into steam at 70 lb. gage, at sea level. This is equivalent to the evaporation of 34.5 lb. of water, from and at 212 deg. F.

It is readily seen that this method of determining the horsepower of a boiler depends on an actual test in

practice; and, as previously stated, the same type of boiler, having the same amount of heating surface, is often found to have a greater or less evaporative power and its horsepower should be rated accordingly.

For example, assuming a feed-water temperature of 100 deg. F., and generating steam at 70 lb. gage, at sea level, a 50-hp. boiler will consume  $50 \times 30 = 1,500$  lb. or, say 180 gal. of water, per hour.

In this connection, it must be remembered that both the water consumption of a boiler and the steam generated, per unit of time, will depend much on the heat supplied by the furnace, as determined by the quality of the coal burned, the kind of draft and other factors that affect the efficiency.

## Examination Questions Answered

### Indiana Mine Firebosses' Examination Indianapolis, Oct. 1, 1921

(Selected Questions)

**QUESTION**—Describe in full a fuel safety lamp, giving the function of each component part.

**ANSWER**—All safety lamps are fuel lamps. The term "fuel" has been occasionally applied to safety lamps to avoid a supposed confusion with electric lamps. The latter, however, are not safety lamps. A safety lamp is one in which the flame of the lamp is isolated from the outside atmosphere by a wire gauze. In the same manner, the expression "flame safety lamps" is sometimes used and for the same reason. But, all safety lamps are flame lamps. No form of electric lamp designed for use in mines can be properly termed a "safety lamp," which is a lamp burning some kind of fuel, either oil or gas, and whose flame is isolated from the outside air by means of wire gauze.

The safety lamp consists essentially of an oil vessel or a tube containing the gas used as fuel for the lamp. Surrounding the flame of the lamp is a gauze chimney, or a glass cylinder surmounted by a gauze and forming the chimney of the lamp. This chimney is fitted to the lamp to which it is firmly secured in a manner to exclude all air from the lamp, except what passes through the mesh of the gauze.

As stated, the purpose of the oil vessel, or gas container, is to supply the needed fuel to the lamp to maintain the flame within the combustion chamber. The purpose of the gauze is to permit the entrance of the air supporting the flame and, at the same time, prevent the flame from passing out and igniting any gas on the outside

of the lamp. The purpose of the glass cylinder is to improve the illuminating power of the lamp. Asbestos washers are used to form a tight joint between the oil vessel and the chimney surmounting it.

**QUESTION**—What precautions would you take in assembling and using a safety lamp, to insure the greatest factor of efficiency and safety?

**ANSWER**—Each separate part of the lamp should be carefully cleaned and examined. The wick should be well trimmed and, if gummed, should be replaced with a new wick. In putting the lamp together, care must be taken to see that the parts are closely fitted and no part omitted. It is particularly important to see that the gauze is perfect and clean.

**QUESTION**—Explain the danger that may result from each error in assembling a safety lamp.

**ANSWER**—Any defect in the gauze of a lamp or failure to properly put the parts together or omitting a washer or other part may cause the failure of the lamp when exposed to gas and result in an explosion.

**QUESTION**—What elements compose atmospheric air and what is the percentage of each, by volume?

**ANSWER**—The principal constituents of atmospheric air are oxygen and nitrogen. The percentage of each, by volume, is: oxygen, 20.9 per cent; nitrogen, 79.1 per cent. Besides these chief components, air contains 0.04 per cent of carbon dioxide and still smaller amounts of ammonia and water vapor. Small percentages of other constituents sometimes given are not important.

**QUESTION**—What elements may be added through the circulation of the air in the mine and what elements may be taken from the air in its passage through a mine? Explain fully.

**ANSWER**—The air current passing through a mine may absorb large quantities of methane or marsh gas and carbon dioxide, where these gases are generated in the workings. The same current may either absorb or deposit water vapor in its passage through the mine, depending on the conditions in respect to the relative humidity and temperature of the mine air and outside atmosphere. The current may also absorb, in less quantity, carbon monoxide when this is present in the workings.

**QUESTION**—What are the causes of mine fires?

**ANSWER**—The principal causes of mine fires are the careless use of open lights in proximity to combustible matter; spontaneous combustion of fine coal and slack in the gob; the ignition of gas feeders by the flame of a shot in blasting; improper installation of electric wires and machinery; the blowing out of a fuse or the sparking of wires igniting gas; the careless use of matches where men are permitted to smoke in the mine, etc.

**QUESTION**—Under what conditions would you seal off a section of a mine to extinguish a fire?

**ANSWER**—For the purpose of extinguishing a fire in a section of a mine, recourse should be had to sealing off the section, only when every other possible means has been employed to put out the fire, and the latter has gained such headway as to menace adjoining portions of the mine.

**QUESTION**—(a) What are the purposes of sealing off fire areas in a mine? (b) How would you determine when those purposes are accomplished?

**ANSWER**—(a) The object of sealing off a fire area in a mine is, primarily, the extinction of the fire by preventing the access of fresh air, which is necessary to maintain the combustion. Another purpose is to prevent the contamination of the mine air with the gases produced by the fire. A third purpose is to prevent the spread of the fire to adjoining workings.

(b) The progress of the fire or the effect of building the seal is carefully watched by testing the nature of the gases given off through the pipes built into the seals. The character of these gases and their temperature will eventually determine when the sealing off has accomplished its purpose.

**QUESTION**—A chemical analysis of mine air showed the following: Nitrogen, 80 parts; oxygen, 12 parts; marsh gas, 3 parts; stinkdamp, 1 part; blackdamp, 3 parts; whitedamp, 1 part. Is this an explosive mixture? Give reasons for your answer.

**ANSWER**—This mixture is highly explosive, containing as it does 5 per cent of explosive gases, viz., methane, 3 per cent, hydrogen sulphide (stinkdamp), 1 per cent, carbon monoxide (whitedamp), 1 per cent.



# The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

**T**HERE is comparatively little change to be noted in the last month in the industrial situation other than that incident to the general accounting which usually takes place at this season of the year, according to the *Guaranty Survey*, just issued. "The holiday trade is over," the *Survey* continues, "and business men have been occupied in making up balance sheets and reconsidering their positions in the light of these figures. Under such circumstances it is natural that orders should be light and collectors more pressing in their demands."

"On the other hand, the drastic changes which took place last year and which have left the business community in a much sounder position than it held at this time a year ago, give ground for more than mere hopefulness in the future outlook. Many of the weaker members have fallen by the wayside. The general level of wholesale commodity prices has remained almost unchanged for the last six months in spite of considerable changes among individual commodities. The cost of money has been greatly reduced, which should permit borrowing for productive purposes. Liquidation has in several industries almost run its course, while production has been severely limited for a considerable period, with the result that stocks of many commodities are no longer to be classed as excessive. Moreover, the demand on the part of the ultimate consumer of goods does not appear to be diminishing, although the public is buying with more discrimination than formerly."

"With the present low money rates, with the credit situation well on the road to clearing up, with production costs better adjusted to the new price level and lower transportation costs, with commodity prices relatively stable, and the continuance of the public demand for consumption goods, the attitude of business men may well be one of confidence. Improvement in general business, though moderate, should characterize the year 1922, unless the numerous adverse factors which have been repeatedly discussed in the *Survey* become more menacing than they are at the moment."

"A continuance of the decline in interest rates and of the rise in investment values, as well as the appearance of a degree of stabilization in commodity prices, are generally looked upon as factors contributing to the laying of a firm foundation for the revival of business."

## Factories Show Better Business

Improved business conditions as well as seasonable activity were seen in the increase of 59c. in the average weekly earnings of New York State factory workers from November to December, State Industrial Commissioner Henry D. Sayer announced Jan. 30. In compiling the average, reports from 1,648 representative manufacturing plants were taken. The average weekly earnings of factory workers in the state in December last were \$24.01, or 12 per cent less than the average of the preceding December. The U. S. Bureau of Labor Statistics reported, it was said, that the cost of living in both Buf-

falo and New York City from December, 1920, to December, 1921, declined 12 per cent.

## Large Car Orders to Be Placed

Predictions that 1922 would be one of great activity for car manufacturers have been made by Max Epstein, president of the General American Tank Car Co. That plant, he said, was operating about 75 per cent of capacity with an early increase in sight. "Orders for at least 15,000 freight cars now pending will be placed within the next three or four weeks," he said. The largest inquiries are from the Burlington, Great Northern and Northern Pacific.

## Freight Loadings Gain 17,398 Cars

Cars loaded with revenue freight during the week ended Jan. 21, totaled 738,275, compared with 720,877 during the previous week, or an increase of 17,398, according to the American Railway Association. This was 29,617 cars more than were loaded during the corresponding week in 1921 but 66,591 less than during the corresponding week in 1920. Coal loadings totaled 164,091 cars, a gain over the preceding week of 4,846 but 4,088 below the total for the corresponding week last year.

## Record Tire Order Filled

A record shipment just made by the Goodyear Tire & Rubber Co. is cited in some quarters as substantiation of the belief that better times in the export market are at hand. That company has just shipped twenty-three carloads of tires from Akron, consigned to a single customer in Continental Europe. This is said to be the largest single export shipment of tires ever made to an individual consignee.

## Railroad Lays Off 1,500 Men

The Chicago, Milwaukee & St. Paul Railroad shops at Milwaukee, laid off 1,500 men Feb. 1. The employees have demanded a return of the seniority rule. Heretofore all employees have been on half-time work. Under the new ruling old employees will work full time and young employees will be laid off.

## Cities Keep Up Employment

Reports from various localities indicate that the recent falling off in employment has been less than anticipated, Cononel Arthur Woods, chairman of the Standing Committee of the National Conference on Unemployment announces. Efforts of the cities throughout the country, he declared, have done much to mitigate the situation. "Many cities," he said, "report that they are appropriating funds, in addition to the regular budget, to relieve distress by furnishing employment. Work that otherwise would be delayed until spring or early summer has been started at once."

## Harvester Plant Reopens

Encouraged by new orders and improved prospects for future business, the International Harvester Co. has resumed operation of its plant at Milwaukee, Wis., which specializes in the manufacture of tractors, farm engines and cream separators.

## Pittsburgh Expects Building Boom

With the building trades strike settled after several months of negotiations, operations are expected to be started soon on construction projects estimated at \$85,000,000.

## Penna Would Cut Indiana Wages 30 Per Cent Now, and More Later, If Necessary

**SERIOUS** wage disputes between miners and operators in the Central Competitive Field are forecast by a statement issued by Phil H. Penna, of Terre Haute, secretary of the Indiana Bituminous Coal Operators' Association, in which he asserts that the miners will receive a reduction of 30 per cent after the expiration of present two-year contracts, March 31. Mr. Penna expects the reduction to be brought about by an agreement between the miners and the operators or by government intervention.

The wage scale, Mr. Penna asserts, should be made subject to modifications at given intervals within the life of the contract, depending on labor prices in the non-union fields. The fields which would be affected by the reduction are in Indiana, Ohio, Illinois and western Pennsylvania.

William Mitch, secretary-treasurer of district No. 11, United Mine Workers of America, in answering the statement of Mr. Penna, asserted that a 30-per cent reduction in the wage schedule and a short-period contract subject to numerous changes would make the operators secure as dictators.

Other points to be sought by the operators are contained in Mr. Penna's statement as follows:

"The production of bituminous coal in the United States for the year 1921 was the smallest since 1911, amounting to 407,000,000 tons, the next lowest being 423,000,000 tons in 1914 and the highest production during those years was 579,000,000 in the year 1918.

"The consumers of coal have been amply supplied and all their demands met for both domestic consumption and export trade and the only reason that there has been no more coal mined is that the people did not want it. How much more coal would have been consumed if the cost of production and the freight rates were materially less cannot be estimated with any degree of satisfaction, but it is fair to presume that it would have been practically negligible.

"We cannot agree, as I see it, to a wage contract which ties our hands for two years and leaves other large coal-producing sections free to make wage schedules below ours. To do so would show a woeful lack of business acumen. This is especially true in view of the fact that the United Mine Workers, not hesitating to ignore contract provisions when increases were obtainable, have stolidly refused to permit or even consider modifications when the tendency was downward, alleging that because our present contract was made in obedience to the orders of the United States Government it was not subject to any modification.

"Again, any new contract must provide that the coal operators be permitted to manage their own properties without unwarranted interference of the union with the management. One large item of expense of producing coal is union interference in every detail of operation and in most instances without benefit to themselves. This is a glaring economic waste.

"Furthermore, any contract made must carry with it collective obligations and the union must be made responsible for the observation of its provisions. No organization should be permitted to participate in making contracts without being responsible to the men with whom they contract and to the public for the discharge of the obligations imposed. In this way we can come nearer equalizing most of production as between districts and so place each section of the country on a fair competitive basis. Competition for business is keen and with a producing capacity of 700,000,000 tons of bituminous coal annually and with a demand under normal conditions of 550,000,000 tons, that competition will be more and more intensified.

"The coal industry in Indiana is suffering in its natural markets because of coal from sections where a lower wage scale obtains and, added to this, high freight rates to

our market. For instance, since 1916 our freight rate to Chicago has increased from 77c. per ton to \$1.78 per ton, or about 126 per cent, while during this same period the rate from West Virginia and eastern Kentucky has increased only 75 per cent."

## Wadleigh Proclaims Gospel of Helpfulness

**F. R. WADLEIGH**, of the Coal and Coke Section of the Department of Commerce, has authorized the following statement:

"The Coal and Coke Section of the Fuel Division of the Bureau of Foreign and Domestic Commerce has been organized and is in existence for the purpose of assisting every branch of the coal and coke industries in promoting and increasing their business, both foreign and domestic.

"The Bureau of Mines is co-operating in this work and in the selection of subjects and problems that call for both technical and commercial consideration and investigation—commercial engineering—coal storage, purchase and selection of coal—sampling and preparation, inspection, methods of use, both industrial and domestic, new fuels and processes, etc.

"Closely associated with all of these activities and vital to their success is the problem of education of all interested in the industries, but mainly of the great coal-buying and using public. The necessity of educating the coal-purchasing public, both industrial and domestic, in the problems of the coal industry is of paramount importance today. We believe that a clear comprehension of the outstanding facts of the coal industry by the business men of the country will do much to clarify the present confused state of the public mind and be instrumental in creating an understanding and attitude of fairness, which will be of distinct benefit to the coal industry and the country at large.

"To make our work of the greatest possible value we want your assistance and co-operation. Let us know how we can help you, how we can best obtain concrete and definite results. Give us your advice, give us your problems, put us in a position to assist you, but understand that there is no question of regulation or obligation involved.

"We want to give service and ask only that you work with us and help us in our efforts."

## Now They Admit They Did It Themselves, Though They Blamed It on the Deputies

**A** SURPRISE was sprung in connection with the trial of about fifty persons charged with complicity in the frequent attacks on Willis Branch in the New River field covering a period of a year, when Tom Lewis, alias Tom Canady, and George Lafferty entered a plea of guilty in the Circuit Court of Fayette County to the charge of attempting to murder D. E. Grady and C. E. Branscome, the lone defenders of the Willis Branch property, on the night of Feb. 18, 1921. Each of the prisoners was sentenced to a year and a day in the state penitentiary. Four men convicted last summer of dynamiting the property of the Willis Branch Coal Co. and serving sentences in the West Virginia penitentiary are in Fayette County ready to testify as state's witnesses against some of those accused of other overt acts in connection with the Willis Branch trouble.

When this disturbance was at its height the charge was frequently made by union miners that the shooting was being done by members of the Baldwin-Felts detective organization, although it was known at the time that there were no members on guard at this property. Confessions and indictments have served to disprove such charges.

**A STUDY** OF the unsaturated hydrocarbons in industrial gases is being made by the Bureau of Mines with a view to developing economic methods for the manufacture of alcohols from them. Ethyl and propyl alcohols in particular are being sought. Gas distilled from a mixture of oil and coal is at present being studied in co-operation with the Trent Process Corporation, of Washington, D. C.



## Smokeless Output Declines 2,565,855 Tons; High Percentage on Navy List

FIGURES covering the production of smokeless coals in West Virginia for the past year, in comparison with the year 1920, as prepared by the Winding Gulf Association, make interesting revelations. It will be recalled that the largest tonnage ever produced by the smokeless fields of West Virginia was in the year 1916, when approximately 36,000,000 tons were produced. The data for last year and the preceding year follow:

PRODUCTION WEST VIRGINIA SMOKELESS COAL, 1921 AND 1920

District	Tonnage 1921	Tonnage 1920	Decrease	Increase
Pocahontas.....	13,206,480	15,421,288	2,214,808	.....
New River.....	6,814,082	7,065,225	251,143	.....
Winding Gulf.....	5,714,046	5,813,950	99,904	.....
Tug River.....	4,130,714	4,073,665	.....	57,049
Totals.....	29,865,322	32,374,128	2,565,855	57,049

The large decrease in production of smokeless coal in the Pocahontas district is due to curtailment of shipments of the U. S. Coal & Coke Co., this one shipper decreasing output more than one million tons in 1921.

It is estimated that 25 per cent of all West Virginia smokeless coals is consumed by the byproduct plants. The Winding Gulf Operators Association office has prepared figures showing just what tonnage of smokeless coals was consumed by the same producers. Of course, in addition to this tonnage, large purchases of slack smokeless coals are bought in the market to furnish those byproduct plants that have no mines of their own.

WEST VIRGINIA SMOKELESS SHIPPERS CONSUMING THEIR OWN PRODUCT

	Tonnage 1921	Tonnage 1920	Decrease	Increase
Pocahontas District:				
U. S. Coal & Coke Co.....	2,229,800	3,310,050	1,080,250	.....
Algonquin Steel Co.....	241,100	250,450	9,350	.....
By-Products Pocahontas.....	91,250	42,350	.....	48,900
Tug River District:				
Solvay Collieries.....	225,900	429,150	203,250	.....
New River District:				
Milwaukee Coke & Gas.....	78,470	286,160	207,690	.....
Winding Gulf District:				
Richmond Ry. & Power.....	149,282	106,826	.....	42,456
Totals.....	3,015,802	4,424,986	1,500,540	91,356

Further figures furnished from the office of the Winding Gulf Operators Association show that the following tonnage of West Virginia coals was used by the U. S. Government during 1921:

	Net Tons
U. S. Navy Yards and vessels.....	695,000
Government Fuel Yard at Washington.....	58,000
Bunkers at Panama.....	625,000
Operating Panama Canal and railroad.....	300,000
Total.....	1,678,000

Compilations by the Winding Gulf Operators Association on West Virginia smokeless coals show that 89 per cent of New River Coal is on the navy acceptable list; Pocahontas, 68; Winding Gulf, 57.5; Tug River, 26.

## Kanawha Field Will Post Wage Scale About March 1, to Be Effective from April 1

THE new scale for the Kanawha field of West Virginia, to become effective April 1, will not be posted until about March 1. At a recent meeting the board of directors of the Kanawha Coal Operators Association determined to defer any action on a new wage scale until late in February, having in view the conditions in the Central Competitive Field and also the coming convention of the United Mine Workers. At the meeting of the directors, who also act as a scale committee, there was a discussion of conditions both from a humanitarian and a business standpoint.

Although no effort was made late in January to fix a scale, D. C. Kennedy, secretary of the association, has announced that he has been given authority to call another meeting of the board of directors before the regular meeting on Feb. 24 for the purpose of fixing a scale, if that

shall be considered advisable. The board was advised by Mr. Kennedy that in his endeavor to negotiate a new contract he had communicated with the miners' officials through personal interviews and otherwise, but had been unable to obtain a conference with the representatives of the United Mine Workers. In every instance he had met with the reply that it was not possible to negotiate any wage scale until after an agreement had been negotiated in the Central Competitive Field. The directors of the Kanawha association take the position that to await the action of that field would postpone matters too long, for the representatives of large companies already have been notified by some of their large contract customers that orders will be transferred to the non-union fields after April 1, lower prices being given as one of the reasons for the change. Some of these makers of contracts, however, are transferring to the non-union fields in order that their contracts may be filled without fail during the strike that seems likely to occur on April 1.

## Engineers of Northeastern Pennsylvania Hold Annual Meeting at Scranton

ON THE evening of Jan. 26 the Engineers Society of Northeastern Pennsylvania held its annual banquet at the Jermyn Hotel, in Scranton, about 450 members and guests being present. This banquet was one of the most successful held in recent years, C. E. Tobey, of Binghamton, acting as toastmaster.

Floyd L. Smith, past president, was the first speaker, and his theme was the financial condition of the society. He was followed by George E. Stevenson, the new president, who spoke on the new law licensing engineers. Mr. Stevenson intends to fight this measure and to show that it is unconstitutional. A petition was circulated with the request that the engineers present sign it, thus showing their disapproval of the law. Subscriptions also were asked, the proceeds to be used in carrying the case through the courts.

William Griffith, consulting engineer, then spoke on the progress of mining during the past twenty-five years. He pointed out that a quarter of a century ago there were 407 collieries in the anthracite field with an output of about 50,000,000 tons per year, whereas at the present time there are only 260 collieries yet they have an output of 80,000,000 tons. The decrease in number of mines is due mainly to the use of electricity. Twenty-five years ago only the thick beds of coal were being operated, while now thin beds—in some cases only 24 in. thick—are being worked.

W. S. Murray, consulting engineer, followed Mr. Griffith. He spoke on the proposed super-power system, the basic idea of which is the generation of electric energy at great central stations in the mining regions and near tidewater and the distribution of current by high-tension line at about 110,000 volts to the large manufacturing centers. The units in the power stations will be of 30,000-kw. capacity each, while individual plants will be able to generate from 300,000 to 400,000 kw. It is proposed to install three plants in the anthracite region, one at Pittston, one at Nescopeck and one at Sunbury. Mr. Murray said that the plant at Pittston would take the full flow of the Susquehanna River for condenser water when it was low. Such a system will show large savings in the consumption of coal and will largely reduce the amount of fuel that must be transported by the railroads.

## Standardization Bureau of Mining Congress Issues Bulletin on Mining Equipment

MINE operators and engineers interested in standardization of mining equipment, or in improving the methods and practices in mining, will be interested in the second standardization bulletin, just published by the Standardization Division of the American Mining Congress, Washington, D. C. It contains the recommendations of the committees from the coal and metal branches. These committees

are composed of mining operators, engineers and manufacturers. The bulletin also contains the discussions of the reports which were presented at the Second National Standardization Conference held in Chicago, Oct. 17 to 22, 1921.

The bulletin contains reports and recommendations of the following committees of the coal mining branch: Under-

ground Transportation, C. E. Watts, chairman; Mine Drainage, E. D. Knight, chairman; Mine Ventilation, W. J. Montgomery, chairman; Outside Coal-Handling Equipment, Henry M. Payne, chairman; joint report by the Underground Power Transmission, A. B. Kiser, chairman, and Power Equipment, H. A. Pauly, chairman.

### Illinois Miners' Earnings, Nov. 15-Dec. 15

**E**ARNINGS during the two-weeks' period Nov. 15-30, 1921, of workers in 99 Illinois mines employing 38,597 men, who produced a tonnage of 1,183,901, are shown in the subjoined tables. This is approximately 27 per cent of the mines, 45 per cent of the miners and 48 per cent of the total tonnage of the state for the period here shown. Total disbursement was \$2,365,403.79. The mines included in this showing are located in all parts of the state and operate in coal seams ranging in thickness from 36 in. to 9 ft. The data, provided by members of the Illinois Coal

Operators' Association, were compiled by F. C. Honnold.

There are three coal operators' associations in Illinois, whose members operate a total of 373 shipping mines. The Illinois Coal Operators Association is the largest, having 179 mines, located in all parts of the state and producing normally about 58 per cent of the total tonnage of the state. The Coal Operators Association of the 5th and 9th Districts has 158 mines, all located within an average distance of 30-35 miles of East St. Louis, and producers about 31 per cent of the tonnage. The Central Illinois Coal Operators Association has 36 mines and produces about 11 per cent of the tonnage.

EARNINGS FOR TWO-WEEKS PERIOD, NOV. 15-30, COMPARED WITH THOSE OF DEC. 1-15, 1921

—Southern Illinois Counties—

	Northern Illinois	Danville	Fulton-Feoria	Springfield	Centuria	Duquoin	Franklin	Williamson	Saline	State Totals and Averages	State Totals and Averages Dec. 1-15
1. Number of Mines....	8	6	14	12	4	5	22	17	11	99	109
2. Av. work time (days)....	4.5	7.8	7.7	6.6	8.3	5.2	5.3	7.4	6.7	6.5	6.7
3. Tonnage.....	43,942	32,770	94,797	121,533	73,736	46,055	392,158	230,254	148,656	1,183,901	42,193
4. Total employees.....	2,825	624	2,985	4,083	1,910	1,750	13,866	5,849	4,705	38,597	42,193
5. Av. daily number all employees working at these mines.....	2,535	588	2,686	3,905	1,737	1,622	12,201	5,366	3,900	34,540	37,788
6. Number earning \$50 or more in two-week pay period.....	390	517	1,941	2,293	1,472	823	7,316	4,232	2,263	21,247	22,469
7. Av. earnings group 6 2-week period.....	\$73.45	\$79.64	\$80.12	\$77.09	\$82.45	\$76.19	\$80.07	\$89.73	\$81.52	\$79.51	\$82.46
8. Percentage (group 6) to av. number working daily (group 5)....	15.4	88	72.3	58.7	84.8	51	60	78.9	58	61.5	59.5
9. Percentage of total payroll paid to those making \$50 or over....	30.4	91.5	81.8	73.4	86.7	68.9	74.2	88.2	68.9	73.8	74.9
10. Number of men on payroll in excess daily average working (excluding mine office).....	290	36	299	178	173	128	1,665	483	805	4,057	4,405
11. Percent absenteeism.....	10.3	5.8	10	4.6	9.1	7.5	12	8.3	17	11.7	10.4
12. Occupational deduction.....	\$410.71	\$982.54	\$9,847.52	\$4,863.36	\$4,496.18	\$2,390.73	\$16,512.05	\$15,547.81	\$3,912.14	\$58,963.04	†
Per capita.....	.148	1.577	3.34	1.22	2.38	1.39	1.215	2.726	.852	1.629	1.555
13. Check-off for miners' union dues and assessments.....	\$4,238.64	\$1,151.86	\$7,972.61	\$8,333.15	\$5,246.68	\$4,066.87	\$4,168.29	\$15,010.75	\$15,826.01	\$103,527.85	†
Per capita.....	1.524	1.85	2.70	2.90	2.78	2.363	3.07	2.632	3.45	2.86	3.336
14. Av. deductions per ton:											
Occupational.....	.0093	.03	.104	.04	.061	.052	.042	.068	.026	.05	.05
Union dues.....	.095	.035	.084	.068	.071	.088	.106	.065	.107	.087	.108
Total.....	.1043	.065	.184	.108	.132	.14	.148	.133	.133	.137	.158

\*Tonnage, 1,277,325. †Occupational deduction, \$64,349.65. ‡Check-off, \$138,047.29.

AVERAGE DAILY EARNINGS BY CLASSIFICATIONS

—Southern Illinois Counties—

	Northern Illinois	Danville	Fulton- Peoria	Springfield	Centuria	Duquoin	Franklin	Williamson	Saline	State Totals and Averages	State Totals and Averages Dec. 1-15
Machine Runners:											
Number of men.....	18	136	151	82	55	553	183	193	1,371	1,397	
Av. earnings for the pay-period.....	\$93.55	\$94.52	\$79.04	\$95.85	\$67.10	\$80.78	\$98.86	\$84.91	\$85.48	\$87.11	
Av. for days mines hoisted coal.....	11.99	12.28	11.98	11.55	12.90	15.24	13.36	12.67	13.15	13.00	
Av. based on every working day in 2 week period (12 days).....	7.80	7.88	6.59	7.99	5.59	6.73	8.24	7.08	7.12	6.70	
Loaders:											
Number of men.....	66	179	1,095	1,157	760	307	3,287	2,389	1,163	10,403	11,173
Av. earnings for the pay period.....	\$57.40	\$68.57	\$74.99	\$70.54	\$83.73	\$71.90	\$75.58	\$85.24	\$75.08	\$71.87	\$77.82
Av. for days mines hoisted coal.....	12.76	8.79	9.74	10.69	10.09	13.83	14.26	11.52	11.21	11.05	11.62
Av. based on every working day in 2 week period (12 days).....	4.78	5.71	6.25	5.88	6.98	5.99	6.30	7.10	6.26	5.99	5.98
Av. tonnage of loaders for days mine worked.....	5.5	7.4	7.5	8.6	9.5	10.1	12.1	9.8	10	9.36	9.1
Day Men:											
Number of men.....	324	320	710	985	630	461	3,476	1,660	906	9,051	9,899
Av. earnings for the pay-period.....	\$76.71	\$85.05	\$85.27	\$81.70	\$79.17	\$80.14	\$84.20	\$95.17	\$89.41	\$88.91	\$86.99
Av. for days mines hoisted coal.....	17.05	10.90	11.07	12.38	9.54	15.41	15.89	12.86	13.35	13.68	12.98
Av. based on every working day in 2 week period (12 days).....	6.39	7.09	7.10	6.81	6.60	6.68	7.02	7.93	7.45	7.41	6.69
Total (all classifications):											
Number of men.....	390	517	1,941	2,293	1,472	823	7,316	4,232	2,263	21,247	22,469
Number of mines.....	8	6	14	12	4	5	22	17	11	99	109
Av. days mines worked.....	4.5	7.8	7.7	6.6	8.3	5.2	5.3	7.4	6.7	6.5	6.7
Av. earnings for the pay-period.....	\$73.45	\$79.64	\$80.12	\$77.09	\$82.45	\$76.19	\$80.07	\$89.73	\$81.62	\$79.51	\$82.46
Av. for days mines hoisted coal.....	16.33	10.21	10.41	11.68	9.93	14.65	15.11	12.13	12.18	12.23	12.30
Av. based on every working day in 2 week period (12 days).....	6.12	6.63	6.68	6.42	6.87	6.35	6.68	7.47	6.80	6.63	6.34



# Believing Coal Strike Unavoidable, Attorney General Formulates Plan; Observers Predict Failure

BY PAUL WOOTON

Washington Correspondent of *Coal Age*

THE action taken by the operators in the Pittsburgh and southern Ohio districts leads coal specialists in and out of the government service in Washington to the belief that there now is little chance of avoiding a strike. The Attorney General has made it clear that he regards the situation as being sufficiently serious to justify the formulation of complete plans for the part he expects to play in case a strike is called. It is assumed in Washington that eastern Ohio and northern West Virginia will follow the precedent established by the other operators and announce equivalent reductions. As it is assumed that the United Mine Workers will not accept a 40-per cent reduction without a struggle, the various agencies in the national capital are trimming their sails for what they believe to be an inevitable industrial squall.

The action of John L. Lewis, president of the United Mine Workers, in making a special effort to interest the switchmen and shopmen in the strike, came as no surprise, but significance is attached to the fact that he made the letter public. This is taken to indicate that the negotiations already are well advanced, if not concluded. This action on the part of the United Mine Workers is an obvious development. Despite large expenditure and great effort, the non-union fields were not organized. The next best thing from the standpoint of that organization would be to interfere as much as possible with the distribution of coal from non-union mines. An indication that Mr. Lewis has no serious hope of interesting the four brotherhoods is the fact that the names of these organizations appear at the end of his list. It is fully realized that he can bring about serious dislocation if he can persuade the switchmen and the shop crafts to enter the fight with the United Mine Workers.

There is much speculation as to whether or not central Pennsylvania operators will follow the lead taken in the Pittsburgh and southern Ohio districts. That move is regarded as having been good tactics from the operators' point of view, but it dissipated the hope that the strike could be avoided.

There has been increased evidence during the last week that the anthracite miners are willing to cast their fortune with the bituminous workers. If they are not already pledged, it is apparent that such a step is highly probable. Organized labor as a whole recognizes the possibilities of the situation and there are evidences of solidarity among labor which insures material assistance for the United Mine Workers. On the other hand disinterested observers are of the opinion that such a strike has little chance for success.

With the domestic demand practically out of the way by April 1, the non-union fields are in a position to supply practically all the coal that the country will use. Stocks sufficient for six weeks or more will have been built up by the railroads, public utilities and most of the industrial consumers. There would be no deep-seated regret on the part of many industrial plants if they were forced to close down for a month or so this spring. Conditions hardly could be more adverse, from the standpoint of the United Mine Workers, but on the other hand it is realized that the Mine Workers have unusual leadership. Under such generalship as that possessed by John L. Lewis, it is a generally held opinion that the Mine Workers are going to capture some of their objectives, despite the fact that the economic situation is against them and a large percentage of the operators are more than willing to grapple in a finish fight on some of the points involved.

## Wadleigh to Collect Data on Coal Storage

DATA with regard to operating and maintenance costs of coal storage is to be collected jointly by the Bureau of Mines and the Department of Commerce under the immediate direction of F. R. Wadleigh, of the Fuel Division of the Bureau of Foreign and Domestic Commerce. Information also will be collected as to methods of storage. No effort will be made to gather information from all who store coal, but some 300 names have been selected as those most likely to have had typical experience and whose costs would be representative. As a result of this inquiry, it is expected that the latest experience in coal storage matters will be assembled.

## League of Industrial Democracy Protests Increase of Coal Prices with Wages

AN ATTACK on the anthracite coal operators' move to increase the price of coal in accordance with proposed wage increases was made Feb. 2 by the League for Industrial Democracy, a new organization of self-termed engineers, economists and technicians with headquarters at 70 Fifth Avenue, New York City.

The organization was recently launched as a successor to the Intercollegiate Socialist Society, and announces that it has "graduated from the colleges into the larger field of industrial conflict," where its program calls for "production for use, not for profit." At the head of the league are Robert Morss Lovett, president; Charles P. Steinmetz, Arthur Gleason, Florence Kelly, Evans Clark, Normal Thomas, Roger Baldwin, Stuart Chase and Harry W. Laidler.

A committee of experts is being formed to investigate the relation of the price of coal to labor and the organization of the industry. The preliminary statement, issued by Harry W. Laidler, research director, is based on information

already procured. Among the claims are: (1) A strike of anthracite coal miners will result on April 1 unless the present controversy is adjusted. (2) The margin of profit made by the anthracite mine owners in the last few years indicates that it is not necessary to pass a miners' wage increase on to the consumer. (3) The claim that \$3.92 of a gross cost of \$5.55 for a ton of hard coal is labor cost is open to question.

Additional investigations in other industries are to be made by the new organization according to Mr. Laidler.

## Board Reports on Nova Scotia Wage Cut

THE Board of Conciliation appointed to investigate the wage dispute between the British Empire Steel Corporation and the mine workers in their employ has made its report. The majority, comprising U. E. Gillen, chairman, and Colonel W. E. Thompson, the company representative, recommend for adoption the schedule fixed by the McKinnon award, except that the wages of the daymen, who received \$3.25 or under per day under that award, be reduced 12½ per cent and the wages of all others be reduced 20 per cent. The McKinnon award was made early in 1920 and the rates then fixed were afterward considerably increased. The minority report, by Mayor Ling, of Waterford, N. S., the miners' representative on the board, recommends that contract rates prevailing Dec. 31, 1921, be reduced 14 per cent and that a minimum rate of \$3.50 per day be established for detail workers, other than boys.

PROGRESS IS BEING MADE by the interdepartmental committee on co-ordination of coal purchases. The committee is completing its tabulation of data in regard to government coal purchases. It is believed that this is the first time that complete information as to the methods of all government bureaus have been tabulated.

## Dauphin County Court Upholds State Anthracite Tax

Unanimous Opinion Declares Impost Constitutional—  
Finds Difference Between Anthracite and Bituminous Coal Permits Tax Without Discrimination

A SUIT in equity recently was brought in the Court of Common Pleas of Dauphin County, Pennsylvania, to determine the constitutionality of the anthracite tax law approved May 11, 1921, the defendants being the Thomas Colliery Co., Herbert Suender, its superintendent; the several directors of the company, S. S. Lewis, Auditor of Pennsylvania, and C. A. Snyder, State Treasurer. As a result on Feb. 2 the judges of the court unanimously rendered a decision requiring the payment of the tax.

The court ruled that the decision regarding the act of June 27, 1913, whereby a similar tax, but of 2½ per cent instead of 1½ per cent, was imposed, was not binding in this case though rendered by a superior tribunal, the State Supreme Court. In that case the court did not find that there was any difference between anthracite and bituminous coal, being guided by the findings of the judge in the lower court. The court in the present case found that there was a difference between the two kinds of coal such as would permit the imposition of a tax on either one without any charge of discrimination under Section I, Article IX, of the Constitution, providing that all taxes "shall be uniform upon the same class of subjects within the territorial limits of the authority levying the tax."

Judge Frazer, who filed a dissenting opinion in the previous case, refused to be bound by the decision of the lower court, that there was no classifiable difference between anthracite and bituminous, because it was well known that there was such a difference and because their coming under a common classification could not be established by the evidence that 40 per cent of the anthracite produced came in direct competition with bituminous. Judge Frazer was overruled by the other judges in that case, but the judges in the present case believed there would be no "judicial effrontery" in coming to a different conclusion if the two coals were proved by evidence to be capable of being placed in a separate legal category. The court trying the present case made many findings all to the effect that there really was such a difference and held that even though anthracite and bituminous coal did not compete they were essentially different in their appearance, nature, characteristics and uses. The court refused to find that "anthracite is used for the same purposes as bituminous, semi-bituminous and semi-anthracite coal."

Quoting Justice Clark's decision (Commonwealth vs. Delaware Division Canal Co.) as follows: "Nor is classification necessarily based upon any essential differences in the nature, or indeed, the condition of the various subjects; it may be based as well . . . upon well-grounded considerations of public policy," the court found that the legislative body, finding anthracite approaching exhaustion, might want, for purposes of public policy, to conserve it for future use by taxation.

Showing that the United States had placed coal in separate classes in eight separate acts of Congress, that Canada in levying import taxes had placed anthracite and bituminous coal in separate groups and that the railroads had separated them into different classifications, the court found that the classification is "one which actually exists in the business world."

The tax being uniform on all anthracite coal, the court found it constitutional, even though no notice regarding it had been published in the anthracite region. It was not, the court said, a local or special law. A certain contradiction in its terms did not render it unconstitutional because of its being unenforceable. It is time enough, said the court, to raise that question when a penalty is imposed under the statute.

THE COST OF LIVING is still about the same—all a fellow has.—*Toledo Blade.*

## Three Fatal Explosions Occur in Mines in Pennsylvania, Kentucky and Alabama

TWENTY-FIVE men, composing the night force of mine workers in the Ross Section (Butt. No. 19) of the Gates mine of the H. C. Frick Coke Co., south of Brownsville, Pa., were killed as the result of an explosion which occurred at 1.30 a. m., Feb. 2. Apparently most of the men thus killed were either poisoned or asphyxiated by the fumes and gases developed by the explosion.

Many of the men were buried under falls of slate and coal but the positions of their bodies and the means they had taken to protect themselves from the fumes are held to have shown that they were dead when the rock fell on them. It is said that some had taken their handkerchiefs from their pockets, others had already stuffed them in their mouths, some had clogged their nostrils with their kerchiefs and others had dipped them in the coffee of their dinner pails before placing them in position as fume filters.

Four men working in another part of the mine came out safely, though two working a mile and a half from the seat of the explosion were knocked down and stunned. Some believe the explosion was due to the ignition of a gas pocket and others to an explosion of coal dust following a shot of dynamite. This latter theory is believed to be the more correct, as Peter Malik, a shotfirer, was found badly mangled and burned under a fall of slate.

The Gates mine connects with the Edenborn and Lambert workings, coal being hauled from them through the Gates mine to the waterfront. Some of the rescue work was done from the Edenborn shaft. The shaft at Gates is 685 ft. deep. The plant was opened by the American Wire & Sheet Co. about twenty years ago. Before the Frick company took it over there was an explosion that killed five men. Since then there have been no disasters of any kind at the Gates mine. The Gates disaster is the first big mine accident of the H. C. Frick Coke Co. since Jan. 27, 1891, when 109 persons were killed at the Mammoth plant by an explosion of coal dust.

Ordinarily about 1,000 are engaged at the plant. Fortunately the day of the disaster was to have been an idle one because barges had failed to arrive. The rescue work was conducted by the well-equipped rescue teams of the H. C. Frick Coke Co., the operations lasting forty hours. A train under steam was kept on a siding all day long ready to rush any injured but still living persons to the hospital. None, however, was found.

Six men were killed and two severely burned in an explosion at the mines of the Layman-Calloway Coal Co., Luce, Bell County, Kentucky, at 8:30 p. m. Jan. 30. According to John Stewart, the superintendent, the explosion was caused by an overcharge of black powder in a hole drilled into the solid, and possibly tamped by coal dust.

On Feb. 2 nine convicts were killed in an explosion of the Belle Ellen mine of the Bessemer Coal, Iron & Land Co., in Bibb County, Alabama, the explosion being due in all probability to the ignition of a gas pocket. All the bodies were recovered.

## Organize to Cut New York Anthracite Price

THE Anthracite Coal Consumers' Association, Inc., having for its principal objects the lowering of freight rates on anthracite and the improvement of the quality of hard coal, was organized last week in New York City. The organization plans to cut New York's coal bill \$30,000,000 per year and that of the anthracite consuming area of New York, New Jersey, Pennsylvania and New England about \$100,000,000.

Dr. Henry Mace Payne is president of the association; Charles C. Haffley, vice-president; Charles S. Allen, secretary, and George Gordon Battle, general counsel. The Advisory Committee includes Charles G. Edwards, John H. Towne, and Lawrence B. Elliman.

An announcement of the association says that a reduction of New York's freight rate on anthracite to \$1.31 instead of \$2.61, the present rate, would leave the railroads a profit as large as, if not larger than, is made on other similar commodities.



# Coal Stocks Recede a Million Tons in Two Months

Consumers Had 47,000,000 Tons on Hand Jan. 1—Would Last 32 Days if Evenly Divided and Business Active—Dealers' Yards Contained Less Anthracite, While Producers Increased Storage Reserves

BY F. G. TRYON AND W. F. MCKENNEY\*

IT IS one thing to know how fast coal is being produced; another to know how adequate the production may be. Stocks in the hands of consumers measure the adequacy of production. The Bureau of Census and the Geological Survey have just completed a survey of stocks of coal of Jan. 1, 1922, following their investigation in the last quarter of 1921. The following analysis presents in somewhat greater detail than the formal report the condition of the country's reserves at this time.

At the beginning of 1922 American consumers had on hand approximately 47,000,000 tons of soft coal. This was about a million tons less than the revised figure of stocks on Nov. 1. While much above the low mark of June, 1920, it was still 16,000,000 tons, or 25 per cent, below the maximum of 63,000,000 tons reached on the day of the Armistice.

In terms of days' supply the present stock appears larger than it would in times of normal business. At the rate of consumption prevailing during December, the reserve was sufficient to last 41 days, if evenly distributed. On Nov. 1 a reserve of 43 days was at hand.

Were business active, the present stocks would last not more than 32 days, if evenly divided. But, of course, stocks are never evenly divided. No American city is without its share of consumers who through absence of necessary space, or sheer neglect, are without protection against interruption to supply. For this reason, as the country has learned by bitter experience, symptoms of a shortage of coal may develop in a few days if deliveries are completely stopped.

Moreover, stocks cannot be allowed to fall to zero; a certain tonnage—perhaps in the neighborhood of 20,000,000—is an indispensable minimum for steady operation of business.

Retail coal dealers' stocks of hard coal on Jan. 1 were smaller than on Nov. 1, but still much above those at any time of record in 1919 or 1920. Incomplete reports on producers' storage indicate that there has been slight increase since last November, at which time yards held 1,768,000 tons of domestic sizes and 2,719,000 tons of steam sizes.

From Fig. 2 the history of the coal trade for the past five years may be read at a glance. Present stocks, it will be seen, are midway between the reserves in late 1916 and 1917, and early 1920, all periods of shortage, and those at the close of the war, when all users of coal who could find the requisite storage space were heavily supplied.

On Nov. 1 the total stock was 48,000,000 tons. The subnormal production of November and December had led some observers to suppose that stocks at the end of the year would show a sharp decrease. That the decline was no greater than a million tons is to be explained by the fact that there is a lag of a week or two between production and delivery.

At this writing (Feb. 4, 1922) the trend of production is once more upward. For the first time in two months the week ended Jan. 28 saw a production sufficient to meet current consumption and at the same time add materially to stocks.

The common denominator available for comparing stocks in different localities and over different periods of time is the number of days the tonnage on hand would last at the current rate of consumption. Figures of days' supply may be misleading, however, when the rate of consumption is subnormal.

The figure of days' supply has the further weakness of all averages that the items going into it may vary greatly. Because industrial consumers as a group had 51 days' supply as of Jan. 1 it does not follow that all industrials were provided with even a week's protection against emergencies.

Subject to these qualifications, the record of days' supply, by types of consumers, shown in the table, is illuminating.

DAYS' SUPPLY OF BITUMINOUS COAL IN HANDS OF VARIOUS CLASSES OF CONSUMERS IN THE UNITED STATES, JULY 15, 1918 TO JAN. 1, 1922

(Figures represent number of days supply would last at current rate of consumption at time of stock-taking.)

	July 15 1918	Nov. 1 1918	Jan. 1 1919	Apr. 1 1919	Mar. 1 1920	June 1 1920	Jan. 1 1921	Apr. 1 1921	Aug. 1 1921	Nov. 1 1921	Jan. 1 1922
Byproduct coke plants.....	28	35	32	23	15a	8a	29	28	31	38	42
Steel plants.....	27	45	42	35	9a	11a	42	38	46	46	48
Other industrials.....	48	71	65	47	27	24	64	47	56	67	51
Artificial gas plants.....	72	85	81	58	31	22	55	66	79	87	89
Electric utilities.....	39	49	49	48	21	22	44	48	44	54	51
Coal dealers, bituminous.....	15	37	39	25	13	10	30	26	42	46	33
Railroads.....	25	31	32	(b)	11a	10a	23a	24a	(b)	31a	35a
Total bituminous	31	45	42	31	18	15	39a	36a	39a	43a	41a

(a) Estimated from incomplete data. Subject to important revision. (b) No data.

Study of the table and of Fig. 1, in particular, will show that a sharply different policy has been followed by the public utilities, railroads and the steel industry on the one hand, and by the retail coal trade and the general industrial consumers on the other, during the past two months. The utilities, and particularly the gas works, have generally added to their reserves since last August. The railroads have accumulated what is for them a very large supply, sufficient to last 35 days. The steel and byproduct coke plants have increased their stocks, both in tonnage and in days' supply, since Nov. 1. But both the retail dealers and the general industrial consumers show decreases in coal on hand from Nov. 1 to Jan. 1.

The best guide to the geographical distribution of stocks is furnished by the industrial consumers, excluding the special group of byproduct coke and steel plants. The group as a whole reported stocks on Jan. 1 sufficient for 51 days' operations. How that average was distributed by states is shown in the map in Fig. 3. Of course what is normal for one state is not normal for another. Long-haul destinations remote from the mines regularly carry heavier stocks than do those in close proximity to mining regions. Furthermore, the quality of the coal available for storage is the factor that largely controls the size of the normal reserve.

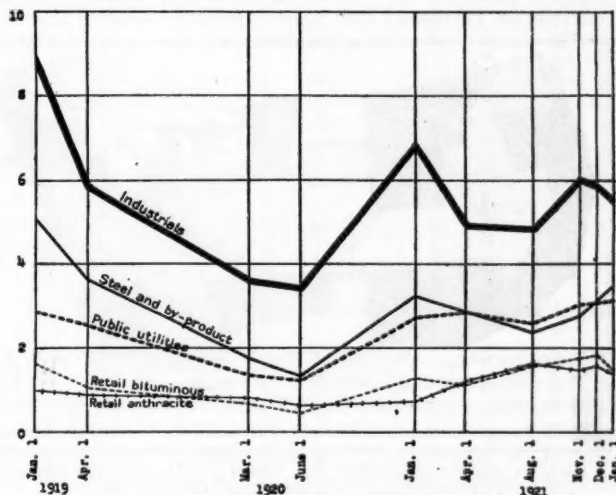


FIG. 1. FLUCTUATIONS IN TONNAGE OF COAL IN STORAGE, JAN. 1, 1919, TO JAN. 1, 1922

Lines in diagram show tons on hand at selected lists of establishments on dates mentioned. The lists are incomplete but as the same establishments are included for the several dates the figures are comparable.

\*Published by permission of Director, U. S. Geological Survey.

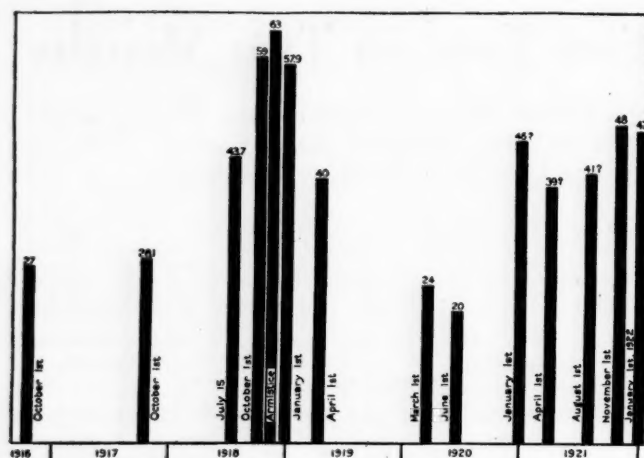


FIG. 2. TOTAL COMMERCIAL STOCKS OF BITUMINOUS COAL, OCT. 1, 1916, TO JAN. 1, 1922

Figures represent million net tons and include coal in hands of railroads, industrial consumers, public utilities and retailers. Coal for steamship fuel, on Lake docks, and in transit is not included. Figures for 1921 and 1922 are subject to revision.

Much interest attaches to the size of present stocks, in comparison with those of, say, a year ago, when reserves were comfortably large. From the map in Fig. 4 it will be seen that there was an almost universal decrease during the year 1921. Only three of the 48 states reported stocks at industrial plants larger at the end of the year than at its beginning.

Like the industrial consumers, retail coal merchants reported smaller stocks on Jan. 1 than on Nov. 1, two months before. In spite of the decrease the yards of the retailers are still well stocked.

The steel industry is a good example of the way the current rate of consumption influences the apparent size of the reserve. The actual tonnage in storage at byproduct coke plants and steel works increased from Nov. 1 to Jan. 1 by 38 per cent. But a revival of activity in the steel business so increased the current requirements that the stock in terms of days' supply increased by only 7 per cent.

As already noted, the gas and electric utilities continued to build up their stocks during the months of November and December.

\*According to reports received from the American Railway Association the carriers had about 35 days' supply on hand at the beginning of the year, allowing for the present reduced rate of consumption.

Coal carried in storage on the Lake docks is treated by the Geological Survey as in transit. This is necessary because it fluctuates so greatly from season to season.

The Northwestern Coal Dock Operators' Association has courteously furnished the following data showing the total

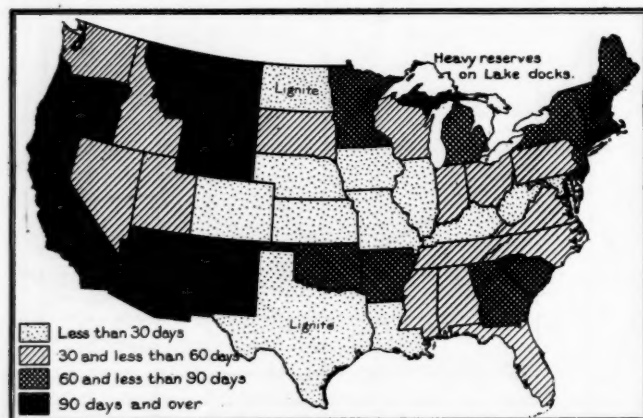


FIG. 3. DAYS' SUPPLY OF SOFT COAL ON HAND AT INDUSTRIAL PLANTS ON JAN. 1, 1922

At the rate of consumption prevailing in December, stocks at industrial plants other than steel and byproduct coke would last on the average 51 days. How the supply varied from state to state is shown in the diagram. The darker the shading, the heavier are the stocks. If business should revive and consumption increase, the stocks expressed in days' supply would be smaller. Based on reports from 2,383 plants.

bituminous tonnage on hand at commercial distributing docks on Lake Superior and Michigan: Aug. 1, 1921, 8,188,639 net tons; Nov. 1, 1921, 8,824,297 tons; Jan. 1, 1922, 7,150,654 tons. These figures are exclusive of coal on private docks of industrial concerns, such as the copper- and iron-mining companies of northern Michigan and Minnesota. The stocks of these latter companies, however, are included in the commercial storage.

From Nov. 1 to Dec. 1 the retailers continued to fill up their stocks of anthracite, and on the latter date average 50 days' supply. In December deliveries exceeded receipts, and the supply declined to 44 days. It was, however, considerably larger than at any time of record during 1919 or 1920.

On Nov. 1, 1921, the producers of anthracite had in storage at Eastern points a total of 4,487,671 gross tons, of which 1,768,091 tons were domestic sizes (including pea coal) and 2,719,580 tons were steam sizes. Complete statistics of the quantity in storage on Jan. 1 are not available, but returns so far received indicate a slight increase in the tonnage of domestic sizes and a slight decrease in the tonnage of steam sizes. The total tonnage appears to be a little larger than on Nov. 1.

The quantity of anthracite on the Upper Lake Docks as of Jan. 1 was practically the same as on Nov. 1. The Northwestern Dock Operators' Association is the authority for the following statement: Aug. 1, 1921, 1,090,258 net tons; Nov. 1, 1921, 1,316,070 tons; Jan. 1, 1922, 1,331,507 tons. The quantity of anthracite in cars at Tidewater and at the rail gateways to New England as of Jan. 1 was not unusual.

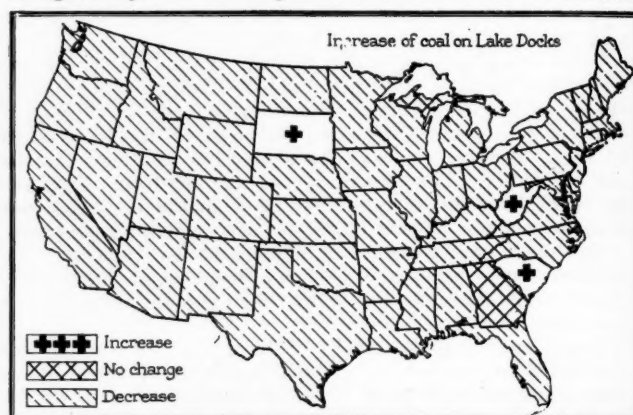


FIG. 4. HOW PRESENT STOCKS AT INDUSTRIAL PLANTS COMPARE WITH THOSE OF A YEAR AGO

Changes are shown in tonnage on hand at 1,983 industrial plants other than steel and byproduct coke from Jan. 1, 1921, to Jan. 1, 1922. In all but four states the quantity on hand at the beginning of 1922 is less than the year before.

### To Introduce Range Coal, a New Size

"RANGE COAL," a combination of nut and pea, will shortly get its trial from the public, as the Lehigh Coal & Navigation Co. is changing its screens in the Tamaqua breaker to produce four sizes—egg, stove, range and buckwheat. Sizes will be screened as follows: Egg,  $2\frac{1}{8}$  to  $3\frac{1}{4}$  in.; stove,  $1\frac{1}{8}$  to  $2\frac{1}{8}$  in.; range,  $\frac{1}{8}$  to  $1\frac{1}{8}$  in.; buckwheat,  $\frac{1}{8}$  to  $\frac{1}{4}$  in.

Limits of tolerance will be: Egg, 2 per cent slate; 3 per cent bone; 5 per cent oversize; 15 per cent undersize. Stove, 3.5 per cent slate; 4 per cent bone; 5 per cent oversize; 15 per cent undersize. Range, 5 per cent slate; 5 per cent bone; 5 per cent oversize; 12 per cent undersize.

The new range size can be described as comprising virtually all the present chestnut coal and 75 per cent of the present pea coal, the remainder of the pea coal going into buckwheat. While the slate and bone percentages in the new range coal show no change from the present standard for chestnut, they are lower than in the case of the present pea coal.

Buckwheat, under the new arrangement, will have a maximum ash content of 17 per cent, to be determined by the flotation method, instead of 19 per cent, as at present.

The above program has been arranged at the request of the National Retail Coal Merchants' Association, which will distribute the new size as a test of its desirability.



# Indiana Operators Throw Down Gauntlet to Miners

Follow Pennsylvania and Southern Ohio Associations by Deciding To Cut Wages Radically and Abolish Check-Off—Pending Federal Litigation Influences Them to Drastic and Determined Action

INDIANA mine owners now have thrown down the gauntlet. Following the action of both the southern Ohio and the Pittsburgh operators they have decided to post in a few days a reduced schedule of wages effective April 1. They were influenced by the litigation pending the federal courts not only to cut wages to a point only a little above pre-war basis but to abolish the check-off system without making any effort to reach an agreement with the miners. This is intended to counteract the impression once general among federal officials that there was collusion between operators and miners on wages and the check-off.

Operators in Indianapolis indicate that this is a logical step to follow from the action taken in Chicago by the Indiana Bituminous Coal Operators' Association, in adopting a resolution asserting that there is a necessity for "radical and sweeping" reductions in miners' wages.

The Indiana operators undoubtedly will announce some changes in working conditions, for in their resolution they said "the welfare of the industry" demands a change in "certain terms and conditions which have been imposed on

its conduct through contracts and awards heretofore made." Chief among the changes, it is expected, will be the abolishing of the "check-off" system, by which the operators have checked the amount of union dues from each miner's pay and turned the money over to the union, acting as a collector of dues for the union. Other minor working conditions also may be changed.

It is not expected that an actual announcement of the wage reduction will be made for several days, as considerable time will have to be spent in working out the technical details of the new schedule.

The amount of the reductions is not yet apparent. However, the two associations which have acted thus far have announced reductions ranging from 30 to 40 per cent. Pick miners now are paid \$1.08 a ton and day men \$7.50 a day. Ohio operators are reducing day men to \$4.50 and pick miners to about 70c. a ton.

Mine workers have received three increases since the war. The reductions announced thus far would take off about two-thirds of the increases hitherto granted.

## Still Doubtful Whether Rail Unions Will Ally with Miners for Wage War

THE response of the sixteen railroad labor brotherhoods to an invitation to pool interests with the miners against wage reductions is still undetermined. John L. Lewis, president of the United Mine Workers, sent his letter Feb. 1 to the brotherhoods urging them to act quickly so that a conference might be held between the two great labor groups. On Monday Mr. Lewis would neither deny nor affirm a report that one brotherhood had accepted the invitation to a conference. Mr. Lewis declined to say how many replies he may have received. It is supposed that the joint conference will be in Chicago, if it is held.

On Sunday the plan for alliance was approved by the New York District Council of the United Brotherhood of Maintenance of Way Employees and Railroad Shop Laborers and the New York Council of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees. These two New York organizations represent about 120,000 men in the metropolitan district. These councils adopted resolutions "demanding" that the international officers of the sixteen brotherhoods accept the miners' invitation and go into joint conference quickly. Of course, this action does not indicate positively the position any or all of the brotherhoods may take.

In a statement discussing his letter to the sixteen brotherhoods Mr. Lewis said the letter is an invitation for the railroad workers to "join in an economic alliance which will operate for the protection and improvement of their standard of living." He pointed out that rail workers have received reductions in wages, and said that efforts are under way to bring about further reductions, and then urges an alliance to oppose this "frenzied hysteria."

The letter was signed by W. D. Van Horn, A. R. Watkins, and N. J. Ferry, as a committee of the executive board, and Mr. Lewis. It is as follows:

The twenty-seventh convention of the United Mines Workers of America, meeting at Cleveland, Ohio, during the year 1919, directed the international executive board to take steps toward the promotion of a closer understanding and a more harmonious relationship between the organizations representing the men employed in the railroad and mining industries.

In harmony with this action, the undersigned committee of members of the international executive board held conferences with representatives of several organizations of railroad workers. Some progress was made and a report rendered to the recent convention of the United Mine Workers of America held in September, 1921. The convention by unanimous vote approved the report and the efforts made and instructed the officers of the organization to renew their efforts to bring about a satisfactory

working alliance with the various organizations of railroad employees.

Pursuant to this action, the committee is now addressing an identical communication to the officers of each of the sixteen major organizations of railroad workers and ventures to suggest that the time is now opportune for the holding of a meeting of accredited, representatives of each organization for the above-mentioned purpose. We would respectfully request that, as representing your organization, you give immediate consideration to the suggestions contained herein.

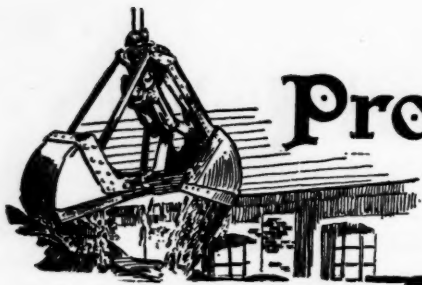
The undersigned will be pleased to have an expression from you at the earliest possible date as to the wisdom of this policy and, if a sufficient number of favorable replies are received, steps will be taken to arrange at some mutually convenient place and time for the holding of an initial meeting of representatives of the several organizations.

## Stephens Opposes Federal Distribution of Coal to Government Departments

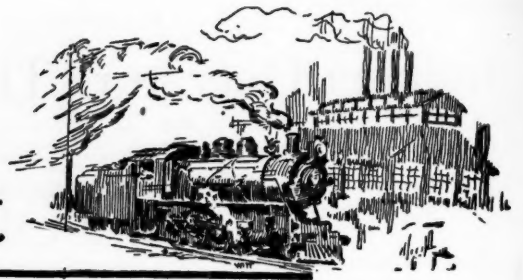
ALTHOUGH it had previously favorably reported to the House a bill for government acquisition of the site of the present leased ground for the Government Fuel Yard in the District of Columbia, the House Committee on Mines and Mining has again taken up the subject in committee consideration. On Wednesday, Feb. 1, Roderick Stephens, president of the National Retail Coal Merchants Association, appeared before the committee in opposition to government acquisition of the property and also opposing the distribution of fuel to government departments in Washington by the government itself. He pointed out that the large quantity of fuel handled by the fuel yard—probably 300,000 tons of bituminous and anthracite yearly—deprived the local retail coal men in Washington of considerable business. Mr. Stephens will give further testimony before the committee on Feb. 15.

## Lonaconing Men Shrink from Inevitable

MINERS employed by the Maryland Coal Co. at Lonaconing, in the Georges Creek field, have spurned the proposed agreement with the company under the terms of which a rate of 85c. a ton was fixed for pick mining and 65c. a ton for machine mining. The present rates under the union scale are \$1.31 a ton for pick mining and \$1.10 a ton for machine mining. The Maryland Coal Co. has normally about 300 men on its payroll. It suggested the reduction in order to get wages and the cost of mining down to a point where it could obtain orders and afford employment to its miners.



# Production and the Market



## Weekly Review

**I**NVITATION to the railroad labor unions to join the United Mine Workers in a collective effort to prevent nation-wide wage reductions and the apparent willingness of some of the railroad workers unions to participate on this basis gives a more serious aspect to the anticipated coal strike next April. The point that the coal consumers are keeping in mind is that should the railroads be tied up or even but a certain few of them be affected the production from non-union fields, which is expected to save the day for the country, would be seriously interfered with. In other words, if John Lewis cannot call out the non-union miners on this strike he will gain the same result if the railroads employees go on strike. Whether or not this dual strike transpires, and on this there is a variety of opinion at the moment, the situation thus created is one to which buyers of coal must give serious thought. The question that must be decided is whether, in the event of a strike, they will operate on coal purchased and stored between now and March 31 or take a chance on obtaining non-union coal after April 1.

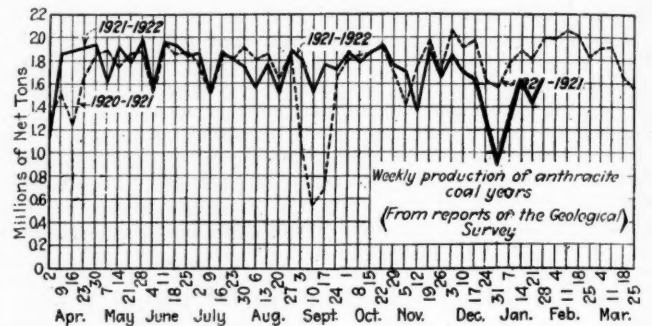
### CONSUMERS AGAIN BUYING COAL FOR STORAGE

Stocks of bituminous coal on Jan. 1, 1922, according to estimates just published by the government, show approximately 47,000,000 tons in the hands of consumers, which was about 1,000,000 tons less than on Nov. 1, 1921. It is reported that the coal on hand on Jan. 1, 1922, was sufficient for 41 days' operation at the rate of consumption prevailing during December, but were business active, stocks would last not more than 32 days. Indications are that, beginning about ten days ago, coal is again being turned into storage, and that the movement in preparation for a shutdown next spring has begun to make slow headway.

Production of bituminous coal has climbed back from the low point in December and if the present rate of production is maintained will soon reach the level of October, the high point in 1921. So far prices have not

been affected by this incipient buying movement. Coal Age Index for Feb. 6 is unchanged at 182.

So far there has been little concern manifested over the possibility of a strike in the anthracite region.

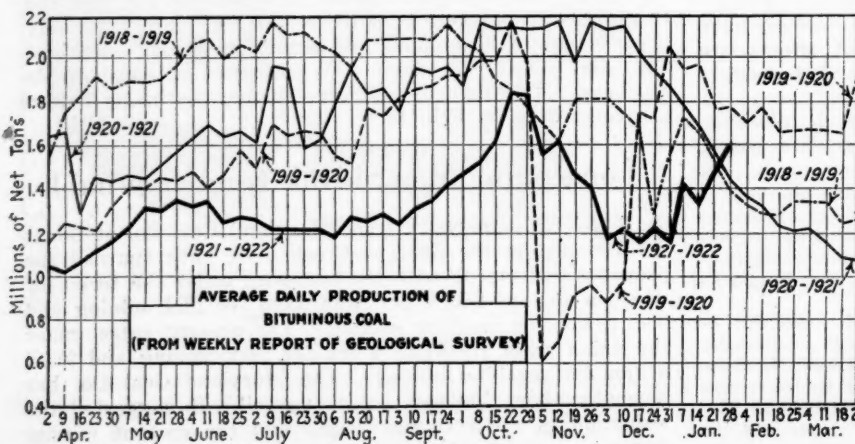


Stocks of anthracite in the hands of 648 representative dealers, according to the Bureau of Census, averaged 50 days' supply on Dec. 1, 1921, but declined to 44 days' supply on Jan. 1, 1922. Forty-four days' supply in the middle of winter is several months' supply in the summer time. Therefore, if production of anthracite is maintained equal to consumption until April 1 there need be no apprehension over a shortage of hard coal. Stocks of prepared sizes in the hands of producers is a little short of 2,000,000 tons, which reserve is, of course, in addition to that in the hands of retailers and household consumers.

### BITUMINOUS

Production rose to 9,626,000 net tons during the week ended Jan. 28, according to the Geological Survey, an increase of 835,000 tons from the output of the preceding week. That production continues to gain is shown by reports of loadings for the first two days of last week—65,000 cars—which were 5,000 cars in excess of the corresponding days of the week preceding.

The number of idle freight cars declined to 555,353 on Jan. 23, compared with a total of 593,298 on Jan. 15. Of the total, 396,192 cars were in good repair. Surplus coal



### Estimates of Production

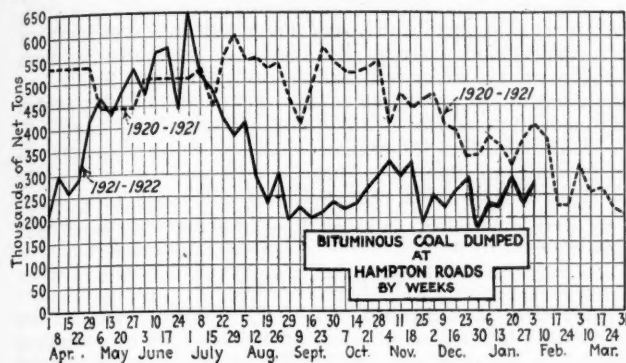
	(Net Tons)	
<b>BITUMINOUS COAL</b>		
Week Ended:	1921-1922	1920-1921
Jan. 14 (b).....	8,302,000	9,936,000
Jan. 21 (b).....	8,791,000	9,184,000
Jan. 28 (a).....	9,626,000	8,570,000
Daily average.....	1,604,000	1,428,000
Coal year.....	340,747,000	458,449,000
Daily aver. coal year	1,344,000	1,800,000
<b>ANTHRACITE</b>		
	1922	1921
Jan. 14.....	1,643,000	1,895,000
Jan. 21.....	1,443,000	1,819,000
Jan. 28 (a).....	1,607,000	1,999,000
<b>COKE</b>		
Jan. 21 (b).....	115,000	258,000
Jan. 28 (a).....	113,000	248,000
Calendar year.....	456,000	1,043,000

(a) Subject to revision. (b) Revised from last report.



cars amounted to 183,999, a reduction within the same period of 11,285.

All-rail movement to New England was 2,810 cars during the week ended Jan. 28, only 160 cars less than in the preceding week. Later reports indicate a better movement, as railroads and utilities are taking an increased tonnage for stocking purposes.



Dumpings at Hampton Roads during the week ended Feb. 2 were 271,000 net tons, as compared with 235,800 in the previous week, when severe weather hindered the movement. Coastwise freights have risen as a result of

a temporary scarcity of bottoms and the fact that many vessels cleared for New England simultaneously with the lifting of the inclement weather, thereby increasing the possibility of demurrage. Coal is not arriving at the piers in quantities heavy enough to embarrass shippers and prices are firm, despite the deplorable export situation and the fact that New England industries are not yet taking much coal in anticipation of a strike. The trouble in the textile mills in that section also tends to lower the tonnage required. Relatively good movement to New England for the last few weeks has placed that territory in very comfortable supply and only moderate buying will be necessary as a safeguard against any April 1 operating disturbances.

Directors of the Sewalls Point Coal Exchange will meet in Washington Feb. 11 to decide whether or not they will continue the exchange. The Virginia Ry. will ask, it is understood, that the exchange be continued until the threatened coal strike is settled. The Lamberts Point Coal Exchange will go out of operation Feb. 15, and the Chesapeake & Ohio Coal Exchange, at Newport News, will continue.

Other markets, especially in the Midwest, are experiencing a better demand. Domestic producers are actively shipping the heavy orders gathered during the recent cold spell. Fear of a strike has finally become apparent and the stocking movement is gathering momentum. Prices on all grades of coal have firmed up, in some cases premium figures

### Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market Quoted	Jan. 9, 1922	Jan. 23, 1922	Jan. 30, 1922	Feb. 6, 1922†
Poahontas lump.....	Columbus.....	\$3.40	\$3.30	\$3.30	\$3.20@ \$3.35
Poahontas mine run.....	Columbus.....	2.15	2.15	2.15	2.00@ 2.30
Poahontas screenings.....	Columbus.....	1.50	1.50	1.55	1.20@ 1.45
Poahontas lump.....	Chicago.....	3.10	2.85	2.85	2.50@ 3.50
Poahontas mine run.....	Chicago.....	2.50	2.15	2.15	1.75@ 2.85
Poahontas screenings.....	Cincinnati.....	2.50	2.85	3.15	3.00@ 3.25
Poahontas lump.....	Cincinnati.....	3.90	1.90	2.05	1.75@ 2.00
Poahontas mine run.....	Cincinnati.....	1.25	1.40	1.40	1.00@ 1.40
Poahontas screenings.....	Cincinnati.....	4.70	4.70	4.70	4.65@ 4.80
Smokeless mine run.....	Boston.....	2.05	1.95	1.95	1.65@ 2.25
Clearfield mine run.....	Boston.....	2.50	2.45	2.45	2.25@ 2.70
Cambria mine run.....	Boston.....	1.80	1.80	1.90	1.75@ 2.00
Somerset mine run.....	Boston.....	3.15	3.20	2.85	2.75@ 3.00
Pool 1 (Navy Standard).....	New York.....	3.00	3.00	3.00	2.85@ 3.25
Pool 1 (Navy Standard).....	Philadelphia.....	2.50	2.40	2.70	2.60@ 2.60
Pool 9 (Super. Low Vol.).....	New York.....	2.15	2.25	2.20	2.20@ 2.50
Pool 9 (Super. Low Vol.).....	Philadelphia.....	2.30	2.30	2.40	2.20@ 2.65
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.10	2.10	2.45	2.15@ 2.80
Pool 10 (H. Gr. Low Vol.).....	New York.....	1.90	2.10	2.05	1.85@ 2.25
Pool 10 (H. Gr. Low Vol.).....	Philadelphia.....	2.00	2.00	2.00	1.95@ 2.20
Pool 10 (H. Gr. Low Vol.).....	Baltimore.....	1.75	1.95	2.05	2.00
Pool 11 (Low Vol.).....	New York.....	1.70	1.70	1.65	1.65@ 1.85
Pool 11 (Low Vol.).....	Philadelphia.....	1.70	1.70	1.70	1.65@ 1.85
Pool 11 (Low Vol.).....	Baltimore.....	1.75	1.70	1.95	1.80@ 1.90
High-Volatile, Eastern	Market Quoted	Jan. 9, 1922	Jan. 23, 1922	Jan. 30, 1922	Feb. 6, 1922†
Pool 54-64 (Gas and St.).....	New York.....	1.50	1.45	1.40	1.40@ 1.60
Pool 54-64 (Gas and St.).....	Philadelphia.....	1.55	1.50	1.50	1.40@ 1.60
Pool 54-64 (Gas and St.).....	Baltimore.....	1.40	1.40	1.65	1.40@ 1.60
Pittsburgh Se'd. gas.....	Pittsburgh.....	2.65	2.65	2.65	2.60@ 2.70
Pittsburgh mine run (St.).....	Pittsburgh.....	2.15	2.15	2.15	2.10@ 2.20
Pittsburgh slack (Gas).....	Pittsburgh.....	1.80	1.75	1.75	1.60@ 1.70
Kanawha lump.....	Columbus.....	2.80	2.60	2.50	2.50@ 2.75
Kanawha mine run.....	Columbus.....	1.75	1.65	1.65	1.50@ 1.80
Kanawha screenings.....	Columbus.....	1.25	1.15	1.15	1.20@ 1.35
W. Va. Gas lump.....	Cincinnati.....	2.40	2.50	2.45	2.00@ 2.60
W. Va. splint lump.....	Cincinnati.....	.....	.....	.....	2.35@ 2.75
W. Va. mine run.....	Cincinnati.....	1.30	1.40	1.35	1.25@ 1.60
W. Va. screenings.....	Cincinnati.....	1.25	1.10	1.05	1.00@ 1.15
Hooking lump.....	Columbus.....	2.85	2.60	2.50	2.50@ 2.75
Hooking mine run.....	Columbus.....	1.75	1.90	1.90	1.65@ 1.90
Midwest	Market Quoted	Jan. 9, 1922	Jan. 23, 1922	Jan. 30, 1922	Feb. 6, 1922†
Franklin, Ill. lump.....	Chicago.....	3.80	3.65	3.65	3.25@ 4.05
Franklin, Ill. mine run.....	Chicago.....	2.90	2.35	2.35	2.25@ 2.50
Franklin, Ill. screenings.....	Chicago.....	2.00	2.05	1.90	1.75@ 2.25
Central, Ill. lump.....	Chicago.....	3.10	3.00	3.00	2.75@ 3.25
Central, Ill. mine run.....	Chicago.....	2.50	2.35	2.35	2.25@ 2.50
Central, Ill. screenings.....	Chicago.....	1.80	1.70	1.50	1.50@ 1.75
Ind. 4th Vein lump.....	Chicago.....	3.35	3.25	3.25	3.00@ 3.50
Ind. 4th Vein mine run.....	Chicago.....	2.55	2.55	2.40	2.35@ 2.65
Ind. 4th Vein screenings.....	Chicago.....	2.10	1.85	1.60	1.65@ 2.00
Ind. 5th Vein lump.....	Chicago.....	2.95	2.95	2.95	2.60@ 3.25
Ind. 5th Vein mine run.....	Chicago.....	2.25	2.20	2.20	2.10@ 2.40
Ind. 5th Vein screenings.....	Chicago.....	1.65	1.65	1.45	1.40@ 1.65
Standard lump.....	St. Louis.....	2.60	2.75	2.90	2.75@ 3.00
Standard mine run.....	St. Louis.....	1.85	1.95	2.00	1.85@ 2.00
Standard screenings.....	St. Louis.....	1.45	1.35	1.00	1.00
West. Ky. lump.....	Louisville.....	2.85	2.55	2.60	2.50@ 2.75
West. Ky. mine run.....	Louisville.....	1.90	1.80	1.90	1.60@ 2.25
West. Ky. screenings.....	Louisville.....	1.25	1.05	0.95	0.90@ 1.45
South and Southwest	Market Quoted	Jan. 9, 1922	Jan. 23, 1922	Jan. 30, 1922	Feb. 6, 1922†
Big Seam lump.....	Birmingham.....	3.35	2.75	2.90	2.75@ 3.00
Big Seam mine run.....	Birmingham.....	2.10	2.10	1.85	1.75@ 2.00
Big Seam (washed).....	Birmingham.....	2.15	2.15	2.10	2.00@ 2.25
S. E. Ky. lump.....	Louisville.....	3.10	2.70	2.75	2.75@ 3.00
S. E. Ky. mine run.....	Louisville.....	1.65	1.55	1.55	1.25@ 1.65
S. E. Ky. screenings.....	Louisville.....	1.35	1.25	1.10	1.05@ 1.25
S. E. Ky. lump.....	Cincinnati.....	2.85	2.65	2.75	2.75@ 3.00
S. E. Ky. mine run.....	Cincinnati.....	1.40	1.45	1.45	1.35@ 1.50
S. E. Ky. screenings.....	Cincinnati.....	1.25	1.05	0.95	0.75@ 1.00
Kansas lump.....	Kansas City.....	5.00	4.75	5.00	5.00
Kansas mine run.....	Kansas City.....	4.10	4.00	4.00	4.00
Kansas screenings.....	Kansas City.....	2.50	2.50	2.50	2.50

\*Gross tons, f.o.b. vessel, Hampton Roads.

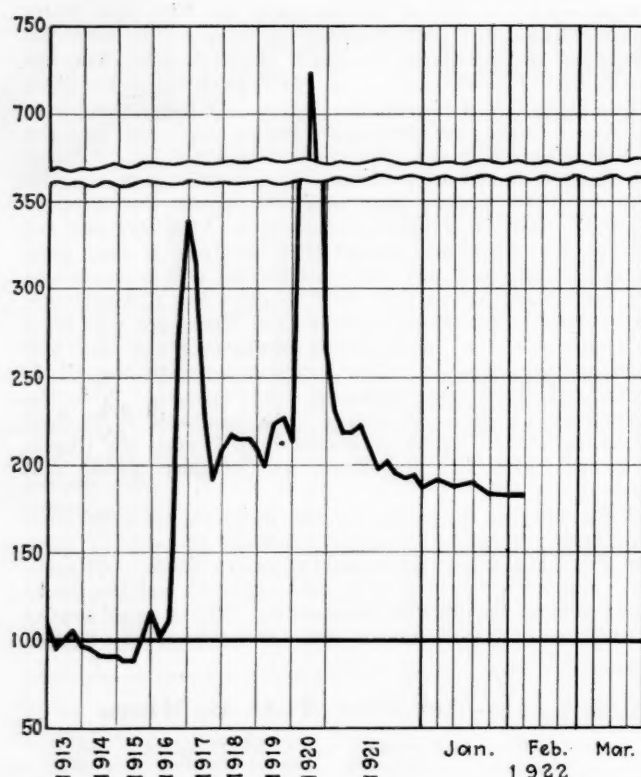
†Advances over previous week shown in heavy type, declines in italics.

### Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

	Market Quoted	Freight Rates	Jan. 23, 1922		Jan. 30, 1922		Feb. 6, 1922†	
			Independent	Company	Independent	Company	Independent	Company
Broken.....	New York.....	\$2.61		\$7.60@ \$7.75		\$7.60@ \$7.75		\$7.60@ \$7.75
Broken.....	Philadelphia.....	2.66	\$6.75@ \$7.50	7.75@ 7.85	\$7.00@ \$7.50	7.75@ 7.85	\$7.00@ \$7.50	7.75@ 7.85
Egg.....	New York.....	2.61	7.00@ 7.75	7.60@ 7.75	7.25@ 7.75	7.60@ 7.75	7.50@ 7.75	7.60@ 7.75
Egg.....	Philadelphia.....	2.66	7.00@ 7.75	7.75	7.15@ 7.75	7.75	7.15@ 7.75	7.75
Egg.....	Chicago.....	5.63	7.40*	6.95*	7.50*	6.95*	7.50*	6.95*
Stove.....	New York.....	2.61	7.75@ 8.10	7.90@ 8.10	7.85@ 8.10	7.90@ 8.10	7.85@ 8.10	7.90@ 8.10
Stove.....	Philadelphia.....	2.66	7.75@ 8.15	8.05@ 8.25	7.75@ 8.15	8.05@ 8.25	7.75@ 8.15	8.05@ 8.25
Stove.....	Chicago.....	5.63	7.60*	7.20*	7.75*	7.20*	7.75*	7.20*
Chestnut.....	New York.....	2.61	7.50@ 8.10	7.90@ 8.10	7.85@ 8.10	7.90@ 8.10	7.85@ 8.10	7.90@ 8.10
Chestnut.....	Philadelphia.....	2.66	7.75@ 8.15	8.05@ 8.25	7.75@ 8.15	8.05@ 8.25	7.75@ 8.15	8.05@ 8.25
Chestnut.....	Chicago.....	5.63	7.60*	7.20*	7.75*	7.20*	7.75*	7.20*
Pea.....	New York.....	2.47	4.75@ 5.50	6.05@ 6.45	4.75@ 5.50	6.05@ 6.45	5.00@ 5.75	6.05@ 6.45
Pea.....	Philadelphia.....	2.38	4.50@ 5.00	6.15@ 6.25	4.75@ 5.00	6.15@ 6.25	4.75@ 5.00	6.15@ 6.25
Pea.....	Chicago.....	5.63	6.10*	5.60*	6.10*	5.60*	6.10*	5.60*
Buckwheat No. 1.....	New York.....	2.47	2.75@ 3.25	3.50	2.85@ 3.50	3.50	3.00@ 3.50	3.50
Buckwheat No. 1.....	Philadelphia.....	2.38	2.00@ 3.00	3.50	2.75@ 3.25	3.50	2.60@ 3.25	3.50
Rice.....	New York.....	2.47	2.00@ 2.25	2.50	2.00@ 2.50	2.50	2.00@ 2.50	2.50
Rice.....	Philadelphia.....	2.38	1.75@ 2.00	2.50	2.00@ 2.25	2.50	1.75@ 2.25	2.50
Barley.....	New York.....	2.47	1.35@ 1.50	1.50	1.35@ 1.75	1.50	1.50@ 1.75	1.50
Barley.....	Philadelphia.....	2.38	1.00@ 1.25	1.50	1.25@ 1.50	1.50	1.00@ 1.50	1.50
Birdseye.....	New York.....	2.47		2.50		2.50		2.50

\*Net tons, f.o.b. mines.

†Advances over previous week shown in heavy type, declines in italics.



Coal Age Index, 182, Week of Feb. 6, 1922. Average spot price for same period, \$2.21. This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the total output of the United States, weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. The result is a series of index numbers, plotted in the above diagram and shown in the table on the preceding page.

being given for cars in transit. The Northwestern docks are busily shipping rush domestic orders, but the steam trade

is unimproved, as consumers feel that dock supplies will be there when needed.

The Navy Department has awarded a contract for 4,000 tons of bituminous coal for the Great Lakes Training Station, Ill., to the Peabody Coal Co., Chicago, at \$2.80 a ton f.o.b. mines.

Inquiries for future tonnage are increasing daily. Operators, however, feel that the strike talk has a definite relation to market conditions, and as a rule are not quoting on anything but current business. It is quite evident, therefore, that prices will not be lower before April 1.

Another union producing section has come out flat-footed for a reduction of wages and the abolition of the check-off. The coal operators of Indiana held an interesting meeting in Chicago Feb. 2. These producers are confidently expecting a shut-down that will last for some time, as it is felt that the present is no time for a compromise. Wages must be reduced and the check-off must be abolished.

### ANTHRACITE

Production of hard coal was 1,607,000 net tons in the week ended Jan. 28, an increase of 164,000 tons as compared with the week previous. Retail business has been greatly stimulated by the coal spell and yard supplies moved well for a short time. Retailers are ordering for replenishment only and not for reserve. Independent prices moved up a peg on both domestic and steam sizes, the latter also being in improved demand.

The decision upholding the anthracite tax law has caused some discussion among producers, some of whom advocate adding the tax directly to the price of coal as a separate item. Some operators are reported to feel that the law will pass the other courts to which it may be appealed, as the last court had all the assistance of former opinions to guide it and the present law was drawn so as to overcome former objections.

### COKE

Beehive coke output was 113,000 net tons during the last week in January, practically continuing the recent rate of production. There is no regular contract market. All first-quarter contracts apparently are covered and it is too early for second-quarter negotiations. The spot market is quiet and Connellsville producers are turning their attention to the coal market in the meantime.

## Foreign Market And Export News

### Coal Paragraphs from Foreign Lands

**GERMANY**—Production in the Ruhr region during the week ended Jan. 21 was 1,929,000 metric tons, according to a cable to *Coal Age*. The preceding week's output was 1,885,000 tons.

**ITALY**—Cardiff steam first, as cabled to *Coal Age*, is quoted at 37s. 3d. on the Genoa market. This has been the ruling figure since late in January.

**SOUTH AFRICA**—A conference of the Colliery Section of the Chamber of Mines has withdrawn the offer recently made to the coal miners on the ground that sufficient time has elapsed for an answer to be returned. This has resulted in notices being posted at the collieries discharging all strikers.

**BELGIUM**—The improvement in the coal market in the demand for industrial fuel shows no accentuation, but orders are more numerous. The coke market is better owing to great demand from France and Luxemburg. The domestic coal market is more active owing to the cold weather. Production

of coal in December amounted to 1,965,350 metric tons. Stocks of coal on Jan. 1 amounted to 946,540 metric tons.

**POLAND**—Coal and coke imports for the 10 months ended October, 1921, as reported by *Commerce Reports*, were as follows: Coal, from Upper Silesia, 1,936,711 tons, from Czechoslovakia, 115,934 tons; coke, from Upper Silesia, 125,366 tons, from Czechoslovakia, 82,648 tons.

**DENMARK**—During the period January-September, 1921, there were imported into Denmark 1,308,800 tons of coal, as compared with 1,646,998 tons during the same period in 1920. The largest quantity came from Northumberland and Scotland—this is, 582,482 and 377,768 tons, respectively. Coal imports from the United States amounted to 183,099 tons, which is 460,000 tons less than in 1920. Only 218 tons were imported from Germany, as against 1,224 in 1920.

**SPAIN**—The Department of Commerce has been advised that Spain has

authorized the purchase of coal from other countries, and the Department advises American firms to establish connections in Spain to obtain some of this trade.

**NEW SOUTH WALES**—The exports of coal from Newcastle (N.S.W.) during 1921 were 4,589,000 tons.

**SWEDEN**—The application made by the Spitzbergen Coal Co. requesting the State to subscribe 750,000 kr. in preference shares was granted recently. This sum has been placed at the company's disposal.

### Hampton Roads Pier Situation

	Week Ended—	
	Jan. 26	Feb. 2
N. & W. Piers, Lamberts Point:		
Cars on hand	1,788	2,021
Tons on hand	99,519	114,341
Tons dumped	119,968	112,820
Tonnage waiting	15,400	6,700
Virginian Ry. Piers, Sewalls Point:		
Cars on hand	1,276	899
Tons on hand	77,000	44,950
Tons dumped	44,568	80,061
Tonnage waiting	22,787	9,989
C. & O. Piers, Newport News:		
Cars on hand	1,119	1,058
Tons on hand	55,950	52,900
Tons dumped	46,006	49,112
Tonnage waiting		5,090

### December Bunker Coal for Steamers (IN THE FOREIGN TRADE)

Customs Districts:	Tons
New York	203,760
Philadelphia	22,125
Maryland	20,023
Virginia	126,266



## British Seek to Reduce Cost of Export Coals; French Miners Accept Wage Cuts

British production for the week ended Jan. 21 was 4,561,000 gross tons, according to a cable to *Coal Age*. This is a slight decrease as compared with 4,719,000 tons the previous week.

Inquiries from abroad are more numerous, and if the export trade continues to indicate the improvement shown during the past few weeks the present rate of production will prove inadequate.

South Wales exports are slowly expanding, demand being chiefly in the Far East and South America. Stocks of best Admiralty large are heavier than usual. Best bunker smalls and cargo bunker smalls are scarce, with prices firm. The improvement in the British industry is mostly discernible in Scotland, where the majority of the pits are operating full time. Many of the owners also report better output per man and a greater willingness to co-operate with the management than has been apparent for some years. Scottish coal shipments for the week ended Jan. 14 were 200,139 tons, an increase of 121,595 tons over the previous week. This is approximately 100,000 tons greater than for the same week a year ago.

The fact that wages in Wales have touched rock-bottom has encouraged the men to better effort and a better spirit is manifest.

There is more trouble in the Durham areas. The miners complain that the Government has left them to stand alone to face the greatest depression in forty years. Cheaper coal by reduced dock charges, reduced transport rates and lower charges by the middleman are sought by the miners as an alternative of any further readjustment of miners' working arrangements. Ascertainments made by the accountants representing owners and workmen under the wage agreement show that the owners are suffering heavy losses. The miner's suggestion indicates the policy of despair and is an argument which the owners may equally apply to their own condition.

### French Strike Is Averted

The threatened strike of coal miners in France has been averted. After a new parley in which tact and a spirit of co-operation on both sides was shown, the mine owners agreed that the two wage cuts, the first to take effect im-

mediately and the second on April 1, would be 2fr. and 1fr.25c., instead of the two cuts of 2fr.50c. each. This means the total daily reduction for miners will be 3fr.25c., instead of 5fr. Family allowances remain unchanged. The men, who first heard of the 5fr. cut right in the midst of negotiations for higher wages, had declared they would pull a general mine strike. Today that danger is past.

The economic condition of mine labor is such that a 5fr. cut would have been a galling thing. The operators finally agreed they could manage to reduce the cost of coal to the consumer 6fr.50c. per ton without reducing wages so drastically. Various reductions in operating expenses are to be made principally by the introduction of labor-saving electrical machinery and by cutting dividends.

### Export Clearances, Week Ended, Jan. 26, 1922

#### FROM HAMPTON ROADS:

	Tons
For Africa:	
Am. Bk. John C. Myer, for Georgetown, Br. Giana	1,348
For Atlantic Islands:	
Am. S.S. Amelia, for Port Antonio	358
Am. Schr. Robt. P. Murphy, for Santo Domingo	500
Am. S.S. Glendola, for Curacao	2,926
For Canada:	
Nor. S.S. Erholm, for St. Johns, N. B.	1,697
For Cuba:	
Am. S.S. Callabassas, for Manopla	492
Am. S.S. Montosa, for San Juan	4,023
Grk. S.S. Philaron, for Santiago	471

#### FROM PHILADELPHIA.

For Cuba:	
Br. S.S. South America, for Havana	...

### Outlook Improves at Hampton Roads

Export volume was unchanged from previous weeks. A number of vessels last week took part coal cargoes for points in the West Indies and nearby. Conditions in South America, as a result of the business depression, were held responsible for a marked decrease in coal shipments to that section.

New England business during the week was fair, with indications of a steady revival of trade. Bunkers continued to hold their own, with a slight increase apparent during the latter part of January and first of February.

January dumpings were only 937,664 tons, as compared with 955,091 tons in December. The comparison with January, 1921, is not favorable, for during that month 1,425,209 tons passed over the piers.

However, the trend of the market last year was distinctly downward while at the present time it is stationary, if not rising. The threatened strike promises to expand the coal business, although no evidence of it is apparent at this time.

Prices are stable, but in certain specific instances under-the-market figures have been freely offered, governed by the fluctuating supplies on hand.

### Pier and Bunker Prices, Gross Tons

#### Foreign Bunker Quotations by Cable to Coal Age

	PIERS	
	Jan. 28	Feb. 4†
Pool 9 New York	\$5.45@5.65	\$5.60@5.80
Pool 10, New York	5.15@5.30	5.25@5.50
Pool 9, Philadelphia	5.50	5.50@5.70
Pool 10, Philadelphia	5.10@5.30	5.15@5.35
Pool 71, Philadelphia	5.50@5.60	5.65@5.80
Pool 1, Hamp. Rds.	4.65@4.80	4.65@4.75
Pools 5-6-7 Hamp. Rds.	4.25@4.40	4.30
Pool 2, Hamp. Rds.	4.50	4.40
	BUNKERS	
	Jan. 28	Feb. 4†
Pool 9, New York	5.80@5.95	5.95@6.15
Pool 10, New York	5.45@5.60	5.60@5.85
Pool 9, Philadelphia	5.60@5.85	5.75@6.00
Pool 10, Philadelphia	5.40@5.50	5.55@5.65
Pool 1, Hamp. Rds.	4.80@4.90	4.75
Pool 2, Hamp. Rds.	4.65	4.60
Welsh, Gibraltar	38s. f.o.b.	38s. f.o.b.
Welsh, Rio de Janeiro	55s. f.o.b.	55s. f.o.b.
Welsh, Lisbon	40s. f.o.b.	40s. f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Marseilles	120 fr. f.o.b.	120 fr. f.o.b.
Welsh, Genoa	40s. t.i.b.	40s. t.i.b.
Welsh, Messina	37s. t.i.b.	37s. t.i.b.
Welsh, Algiers	35s. f.o.b.	35s. f.o.b.
Welsh, Pernambuco	62s. 6d. f.o.b.	62s. 6d. f.o.b.
Welsh, Bahia	62s. 6d. f.o.b.	62s. 6d. f.o.b.
Welsh, Madeira	40s. f.a.s.	40s. f.a.s.
Welsh, Teneriffe	40s. f.a.s.	40s. f.a.s.
Welsh, Malta	40s. f.o.b.	40s. f.o.b.
Welsh, Las Palmas	40s. f.a.s.	40s. f.a.s.
Port Said	49s. f.o.b.	49s. f.o.b.
Belgian, Antwerp	30s.	30s.
Alexandria	46s.	46s.
Bombay	38 rupees	38 rupees
Capetown	42s.	42s.

### Current Quotations British Coal f.o.b. Port, Gross Tons

	Jan. 28	Feb. 4†
Cardiff:		
Admiralty, Large	24s. 9d.	24s. 6d. @ 25s.
Steam, Small	18s.	18s. @ 19s.
Newcastle:		
Best Steams	25s.	24s. @ 26s.
Best Gas	21s. 6d.	21s. 6d. @ 22s.
Best Bunkers	21s.	21s. @ 22s.

† Advances over previous week shown in heavy type declines in italics.

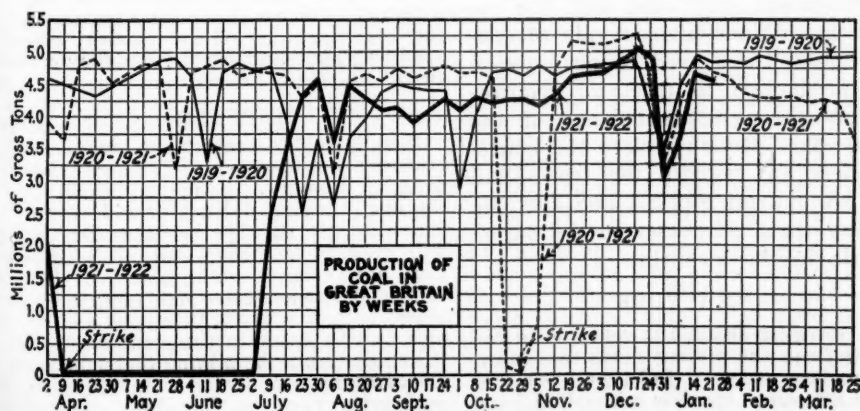
### Port of New York 1921 Exports Fall Short of 1920

Exports of coal and coke through the Port of New York last year fell considerably short of those during the previous year. There were 131,875 tons of anthracite sent to foreign countries as compared with 209,527 tons in 1920, a decrease of 77,652 tons; 61,641 tons of bituminous as against 208,840 tons, a decrease of 147,199 tons and 6,884 tons of coke as compared with 32,355 tons in 1920, a decrease of 25,471 tons.

Of the bituminous shipped Canada is credited with receiving 2,294 tons; Newfoundland, 1,713; San Domingo, 974 tons; France, 25,868 tons; Egypt, 1,000 tons; Norway, 500 tons; Turkey, Europe, 4,500 tons; England, 147 tons and Italy, 6,188 tons.

### Northern West Virginia Coal Operators' Association

The annual meeting of the association will be held in Fairmont, W. Va., on Tuesday, Feb. 14, 1922. George S. Brackett, secretary.



## North Atlantic

### Seek Low Prices For Pre-Strike Deliveries

**Buyers Shaken Up By Union Activity  
And Industrial Program—Little Con-  
tracting Going On Now—Wage  
Question Up Feb. 10.**

Consumers in the North Atlantic section are busily engaged in seeking price protection on deliveries prior to the strike. Better buying has been induced by union developments but a stronger manufacturing program is also taking a little extra tonnage. There is not much talk of contract making at this time. In fact, operators are inclined to keep their commitments down to a strictly current basis.

The Central Pennsylvania Coal Association will meet about Feb. 10 to consider the wage question. Conditions in the unionized operations are unchanged and the low cost mines continue to secure the majority of the business offered.

#### NEW YORK

While there is a little more firmness in the market and spot quotations indicate a trifle more strength, demand has not increased much. The recent snow storm caused some congestion and has resulted in a shortage of the better grades of coal at the New York docks. However, toward the end of the week there were about 1,400 cars on hand, practically the same number as at the corresponding time of the week previous.

Buyers have not yet shown any disposition to place orders but are busily engaged in many inquiries. Talk of contract making has practically ended for the time being.

Some local houses report better business and February is expected to show greater improvement as the expected strike is too near at hand to keep buyers out of the market for any length of time.

Call for grades of Pool 9 is said to be somewhat stronger in some local houses. A slight improvement is reported in the bunker business.

#### BALTIMORE

The export situation continues most unsatisfactory. Including two shipments to Porto Rico, two to Egypt and one to Argentina, the total January movement was 19,488 tons cargo and 800 tons bunker. This was probably the poorest month's showing since before the war. Industrial demand continues fair, however.

Steam coals are 15c.@25c. higher at the mines per net ton than they were two or three weeks ago. Gas coals after a brief spurt are again on a remarkably low basis, and the best Pennsylvania lump has been offering in this market in the past few days as low as \$2.15@2.25 a net ton f.o.b.

mines. West Virginia gas is weaker still. Run of mine has been offering around \$1.40, while both slack and three-quarter are ranging \$1.40@1.50 a net ton f.o.b. mines.

#### CENTRAL PENNSYLVANIA

The executive board of the Central Coal Association met last week to consider the wage question. Operators contend that they can no longer mine and sell coal in competition with the other big fields that have decreed a reduction.

The entire situation was discussed but no action was taken affecting the central Pennsylvania field and another meeting will be held on about Feb. 10. It is probable that a meeting of all the members of the association will be held at that time.

Production is keeping pace with the first two weeks of the month of January, the unsettled conditions tending to stimulate buying owing to the possibility of a strike after March 31.

#### PHILADELPHIA

The bituminous market is better, but not busy. There has been heavier spot buying, although prices have advanced only slightly. There is, however, an unlimited supply of coal to be had at prices as low as any quoted in the last three months.

There has also been an increase in

consumption due to the weather, and some lines of business are buying again. The best buyers are certain branches of the iron trade, most of whom while running lightly for the past six months, have cut heavily into accumulated stocks, and are now replacing some of it.

Inquiries from the consumer have doubled, and buyers are asking about contract prices, though few, if any, producers will give a definite quotation. It looks as if discussion of contracts will be postponed until April. Customers of long standing are assured that they will receive, in the event of mine trouble, preferential treatment.

#### FAIRMONT

Only a limited number of mines are in operation. Some concerns report an increasing number of inquiries but little additional business and about the only companies able to secure any spot orders are those having non-union mines and where the cost is low.

Even contract shipments are limited. Commercial business is extremely scarce and about all that keeps mines in operation anywhere is railroad fuel.

#### UPPER POTOMAC

Conditions are unimproved. Until there is a wage adjustment additional business will be unobtainable. Some companies have offered their employees work at a reduced scale but such offers recently made have been rejected. There are some railroad fuel contracts to be filled but where companies are without good sized contracts they are not operating. Prices are showing a softening tendency.

## Anthracite

### Production Rises but Retail Trade Wavers

**Steam Coals Hard to Get—Much Idle  
Time At Mines In Spite of Inde-  
pendent Activity—Yards Reorder  
Only for Replenishment.**

Production has increased with the cold spell. The retail business is sporadic depending on the weather. Steam coals are still scarce. Independent operations are heavier but there is still much idle time.

Retailers are reordering for replenishment only and not for reserves. At the present rate of consumption there need be no increase in production to meet all requirements through the balance of the coal year. Both retailers and householders are hopeful that costs will be lower after April 1 and are confining their purchases to the barest needs in the meantime.

#### NEW YORK

A growing demand is reflected in reports from the mining fields that more operations are on a full-time basis and that numerous smaller mines that have

been idle because of the slump have resumed operations. Locally, retail dealers report considerable increased business. There are some consumers, however, who intend to withhold orders until after the new wage agreement between the operators and workers is entered into, believing there will be a wage reduction as well as a cut in freight rates.

Retail yards are well filled, and their owners are not willing to take any more coal than they believe they really need. Complaint of poor collections is frequently heard.

All steam coals are active. Buckwheat No. 1 is tighter but has not yet reached the point where there is any difficulty to obtain it. In some instances, the better grades of independent rice are being quoted above the company circular. Barley is growing scarcer.

#### BUFFALO

Despite colder weather the anthracite trade did not come up to former standards in January. Some say that, as the early buying did not provide for a full winter's supply the later buying will need to be heavy, but all predictions have come to nothing so far. The consumer has somehow managed to get along with a very light supply and he bids fair to go on in the same way.

Reports from the mining districts are discouraging. A dealer in independent anthracite says he has been offered



some already on cars, at prices below circular, in order to save it from demurrage, but he can find no market for it.

#### PHILADELPHIA

The big snow early in the week gave the retailers plenty of business, but deliveries were difficult because of drifts. Ordering fell off rapidly at the end of the week with warm weather.

The retailer continues to order sparingly, even of the most wanted sizes, stove and nut. Pea coal is in better demand. Retail prices are firmer, but only because of the storm.

The outlook for good business during the present month is promising. Buyers who bought only part of their winter supply are coming into the market steadily now.

The steam situation strengthens considerably, and the change is shown best by the independents, who are getting better prices now for all sizes, some even claiming full company circular, although it is still a fact that fair shipments of all sizes can still be had off-price, particularly rice. The demand for barley increases and most independents are able to command \$1.25 for their output. However, should the strike agitation fall they figure that following April 1 all steam sizes will be a drug on the market, with most of the manufacturing plants well stocked.

#### ANTHRACITE FIELDS

Although a general cold spell has been felt all over the eastern part of the United States it has not to any large extent affected the demand. Most of the companies are operating on part time and the work is so divided that at all of the collieries of a company the men will have equal opportunity to work.

The Jermyn Coal Co. which has been shut down for a number of months has resumed work. The men went back at their old rates of pay. This is the company that tried to get their men to accept lower wages.

There has been some stiffening of independent prices due to the cold spell.

#### BOSTON

Domestic sizes are in somewhat better demand as a result of the recent cold weather. Retail business slumped promptly, however, when the cold spell was over, but there is beginning to be enough concern over possible labor trouble to induce a little more buying. All sizes are in plentiful supply and for the present no extra demand is looked for.

#### CHICAGO

There is no great activity in the anthracite market. Prices are holding reasonably firm, with the demand fairly good. Anthracite, however, is receiving a great deal of competition from smokeless West Virginia coal, principally on account of the vast difference in price.

#### BALTIMORE

After ten days or so of real activity due to the heavy snowstorm a let-down in buying has come in the trade. Deliveries were difficult and expensive. Snow drifted four feet deep in places and lay 26 inches deep on the level. The present winter is now expected to prove one of the lowest consumption periods in the history of the trade.

## New England

### Buying Is Moderate; Railroads Stock Some

**This Improves All-Rail Movement But Reserves Are So Big That Nobody Worries About Impending Strike—Prices Are Easy.**

New England markets are not taking much additional tonnage. Moderate buying prevails, although the ail-rail receipts are slightly improved due to a little stocking by railroads and utilities. The present sluggishness in manufacturing circles, coupled with the fact that reserves are good precludes much buying in the face of the threatened strike. The buyer is also aware of the fact that the water-borne coals will be available at that time, barring participation by the rail unions in the miners' controversy.

Prices are easy. Marine freights have stiffened because of the congestion caused by recent severe weather along the coast.

Inquiry for steam grades has dropped off. The market is again as quiet as early in January and there is a disposition among buyers to await developments. A week ago there were a number of inquiries in the market, but only a relatively few purchases resulted from these.

At Hampton Roads there is practically no change in quotations. There is an ample supply on hand for what boats arrive and apparently there is no difficulty securing spot coal on short notice. On-car quotations for inland delivery at points like Boston and Providence are maintained on about the same level as the latter part of January.

Competitive bids for supplying from 8,000 to 15,000 tons to Massachusetts Insane Hospitals showed a range of \$6.15@ \$6.35 per gross ton, on cars Boston and Providence, ash and B.t.u. being submitted from 5 per cent and 14,600 up. All-rail quotations on the same business varied from \$2.25@ \$3.50 per gross ton at mines, the ash running from 5 to 7 per cent and the B.t.u. from 14,500 to 14,850.

Marine freights, Hampton Roads to Boston, have now risen to about \$1.25 on vessels and barges of 2,500 tons upward, while smaller craft have been quoted recently as high as \$1.50. This is a very material advance over freights that were quoted a fortnight ago and is due partly to strike talk but very largely to a temporary shortage on spot bottoms. For seven or eight days because of adverse weather, boats were unable to sail from Hampton Roads and the result is an abnormally large fleet now on the way here with more or less demurrage in prospect. When some of these boats start out light from here looking for charters, it is expected rates will recede somewhat.

The demand for Pennsylvania grades continues very light, although move-

ment on contract has somewhat improved. The railroads are taking supplies in larger quotas and these requirements together with gas companies account for better receipts. Prices remain unchanged and are shown in the Weekly Review.

Doubtless moderate buying will continue, particularly on smokeless coals, and to that extent the market this month will average better than during January. Industries are really in no better shape, however, and consumers are taking coal only to be safe on supply during the spring months. Reserves are still large and the threatened textile strike is likely to ease off purchases the next few days.

## Coke

#### CONNELLSVILLE

The coke appears a shade softer, but probably only because additional evidence of the condition has chanced to crop out. The chief news of the week is that two contracts for furnace coke for shipment over February, aggregating about \$16,000 tons, have gone at less than \$3. The spot market, quotable lately at \$2.75, is still at that figure, though possibly this could be shaded 5c. or 10c.

Operators are turning their attention still more to coal as a broader demand is expected on account of the suspension at the union mines April 1. One large operator would not consider furnace coke sales even at much above the present market and is unwilling to increase foundry coke business. Another operator gave up two customers, resulting in the fresh sales reported above, preferring to use his mining capacity this month against sales of coal.

The *Courier* reports production in the week ended Jan. 28, at 56,790 tons by the furnace ovens and 33,560 tons by the merchant ovens, a total of 90,350 tons, an increase of 3,800 tons.

#### UNIONTOWN

The impending strike in the union coal fields continues to overshadow any development in the Connellsville field and it is now evident that the strike talk has commenced to have a definite relation to market conditions. Prices, however, are unchanged because those consumers, who are preparing for the future, are seeking to buy for future delivery, while operators are declining to quote prices ahead.

Tonnage of any grade of coal handled here can be obtained at nominal prices but it does not have a great demand. Isolated sales are reported at \$1.30@ \$1.40 for steam coal and byproduct \$1.60@ \$1.80.

#### BUFFALO

Jobbers report few inquiries for any grades of coke except domestic, which is moving moderately. The furnaces appear to be fully supplied for some time. Quotations are: \$4.15 for 72-hr. Connellsville foundry, \$3.15 for 48-hr. furnace and \$2.75 for stock, with chestnut for house use \$3.75.

## Eastern Inland

### Buyers Show No Haste But Now Appear Uneasy

**Consumers Begin To Measure Reserve Piles Against a Possible Strike Shortage—The Check-Off Is Main Issue in Union Fields.**

Buyers are rather leisurely in making overtures for much additional tonnage. There is, however, a growing undercurrent of uneasiness about safeguarding reserves for the period of expected trouble with the union mines. The lagging start in stocking is caused by the sluggish industrial situation which is only improving very slowly. Railroads and public utilities are the only ones so far to take definite steps toward amplifying their reserves.

The slight increase in business is going largely to the non-union fields. Pittsburgh producers have posted their new wage scale. The elimination of the check-off appears to be the main issue, as the men have made relatively little complaint about the prospective reduction in rates.

#### CLEVELAND

Important inquiries for storage coal are coming in and prices for steam grades are beginning to stiffen as the probable coal strike of April 1 draws nearer. Buyers are biding their time, feeling that any strike that may occur will be short. Coal operators are not inclined to discourage that attitude just now. In fact little effort is being made by some sellers to obtain orders at present prices on the strike argument.

A number of operators have withdrawn from the market until Feb. 15. With the market rising they are keeping their orders for delivery down to four or five days ahead. Losses have been so serious in recent months, that advances expected to come soon will offer the only opportunity of recouping.

All buyers are not holding off. Inquiries for from 2,000 to 5,000 tons for delivery by March 10 are appearing. Even so, buyers are shopping around and looking for the best prices to place their storage coal orders. The lack of snap to the industrial situation is another factor contributing to the rather lagging start in the buying movement. Operators fully expect that when the buying does start it will come with a rush. More coal is being mined and shipped than one month ago. Slack is quoted at \$1.60@1.75. Mine run is quoted up to \$2 and 1-in. lump at \$2.10@2.15.

#### PITTSBURGH

There is considerably more inquiry than a week ago, but actual buying is scarcely any heavier. The inquiry is chiefly to the adjacent non-union fields. Transactions in Pittsburgh district coal continue very light. Prices quoted are

the same as for a long time past and represent no more than cost, with the present U. M. W. scale. Slack, which goes as a byproduct at whatever it will bring, is a shade easier for gas, steam slack being unchanged for several weeks.

While the general if not the universal opinion is that there will be a mining suspension April 1 at the union mines, buyers seem to be in no hurry to stock, and apparently feel that there is plenty of time left. Even the non-union districts are not working full at present, so that they could take on additional business during the suspension.

The common opinion is that the wage scale offered by the operators, and which is posted at mines as a direct communication to employees, is the limit the operators will pay, but it is felt at the same time that the rates would probably not prove especially objectionable to the men. The chief point at issue is the check-off.

Connellsville mine run steam coal is freely offered at \$1.50 and has sold at considerably less in a few cases. The best Connellsville gas is bringing as high as \$2. We quote the Pittsburgh district market unchanged except for a decline of 10c. in gas slack to \$1.60@1.70.

#### COLUMBUS

There is a better demand for steam sizes as manufacturing is going forward more actively. Public utilities are buying fairly well and some business from railroads is also reported. Prices have not advanced to any extent, except in the case of Hocking screenings.

Retail prices are steady at former levels, but demand has eased up. There is little demand for domestic coke.

Production is increasing under the influence of better buying. But the non-union fields of West Virginia and Kentucky are profiting more than Ohio fields. Operations in the Hocking Valley have been about 23 per cent while Pomeroy Bend, Cambridge and Crooksville are not producing any larger percentage.

A suspension on April 1 appears to be more certain than ever. As a result, a better buying movement, both for steam and domestic grades, is expected the latter part of February and early in March.

#### EASTERN OHIO

Production during the week ended Jan. 28 was 319,000 tons, a decrease of 7,000 tons under the output of the preceding week. Association mines increased operations, working about 40 per cent of full time and producing around 50 per cent of capacity.

Steam users as yet fail to respond to the warning signals of a strike. Increasing discussion anent differences between operators and the unions, however, is giving rise to some concern, and inquiries are more active.

The business trend has improved to such an extent that railroads are experiencing increased traffic. The prediction is made that once the demand for reserve fuel gains a little momentum, a car shortage will develop

within a short time. This was demonstrated last October, and "bad order" cars have not received much attention during recent months.

While traffic is showing improvement, this has not yet been reflected to any appreciable degree in the current demands for railroad fuel but it is conservatively estimated that the roads are taking something over 40 per cent of the output at the present rate of production.

A survey of the general situation at this time resolves itself into the conclusion that the coal mining business is simply "marking time" awaiting developments. Spot prices on various grades show little change except that slack has recovered from its recent sinking spell, moving from \$1.50 up to \$1.60@1.65.

#### DETROIT

Consumers of steam coal are not displaying the interest in the market that might be expected, in view of the possibility of a suspension of mining operations in the union districts about April 1. Buying is generally in small amounts and irregular.

Some buyers are counting on being able to provide for their requirements from the output of the unorganized mining districts, in the event of a strike. The low consumption basis seems to lend support to the theory that enough coal will be obtainable from non-union fields to satisfy requirements.

Four-inch West Virginia lump is quoted \$2.60@2.75, two-inch lump, \$2.25, egg, \$2, mine run, \$1.65, nut and slack, \$1.25. Three-inch lump from Ohio is \$3, 1 1/2-in. lump, \$2.75, egg, \$2.25, mine run, \$1.90, nut and slack, \$1.60. Pittsburgh No. 8 1 1/2-in. is \$2.35, three-quarter lump, \$2.25, mine run, \$2, nut and slack, \$1.65. Smokeless lump and egg is \$3@3.25, mine run, \$2.15, nut and slack, \$1.25.

#### BUFFALO

Not many shippers report any improvement in demand, and so much coal is in sight and so many mines are ready to start up that prices probably will not tumble when buying starts.

A better market is likely to free any amount of coal that does not now come here. Then there are mines running everywhere that do not figure on a profit. If the men can be provided with enough to live on and the mines are kept in good running order it is all that can be expected.

The able jobber, who has the confidence of both operator and consumer, is doing some business at a profit. All other members of the trade are making little headway.

Quotations remain unsteady at \$2.75 for Youghiogheny gas lump, \$2.50 for Pittsburgh and No. 8 lump, \$2.25 for Allegheny Valley and other mine run and \$1.50@1.75 for slack, adding \$2.36 to Allegheny Valley and \$2.51 to other coals for freight.

#### NORTHERN PANHANDLE

Railroad fuel continues to constitute the bulk of the output, which amounts to approximately 50,000 tons a week. Spot buying is almost at a standstill except for a few lump orders. In general, however, retailers seem to be well stocked. Companies producing nothing but commercial coal are working only a day or so a week. With the demand so insignificant, prices are barely holding.



## Cincinnati Gateway

### Backwash from North Hits Cincinnati Market

**Public Utilities and Retail Trade Both Stimulate Production—Credits Are Made So Cautiously That Movement Is Slowed.**

Heavily sold Northern and Western markets have created a backwash of smokeless coals at the Cincinnati Gateway which has softened that market. Public utility buying has stimulated the movement of steam bituminous while a more active retail distribution has aided domestic production. Credits are being made cautiously and this tends to restrict the movement.

There is a growing tendency among the men to take a wage cut, but this is being vigorously opposed by union officials.

#### CINCINNATI

A softening market for smokeless coals has followed the heavy movement made recently. As a result run of mine dropped to around \$1.75. Lump and egg still hold at \$3. Nut, however, followed the run of mine in its decline and screenings are weaker.

The calm in steam and domestic bituminous business has not affected prices much. There has been quite a noticeable entry of public utilities into the market and this has stiffened. Kentucky operators are still offering their slack at 25c. to 50c. below the market set by West Virginia, though it does not seem to speed up orders to any great degree.

Collections have been getting slower and slower and are bothering a great number of the firms. Some are inclined to the belief that the failure of response to urgings indicates that the worst of the pinch of hard times is on.

Retail business has been exceptionally good with the local firms, the recent cold spell calling for heavy replenishments and the increase in the gas rates forcing a number of new orders where the equipment allowed the use of coal. Smokeless prices are: lump \$8; run of mine \$7; slack \$5.25. Bituminous lump is \$6.50, run of mine \$5.25, and slack \$4@4.75.

#### HIGH-VOLATILE FIELDS

##### KANAWHA

Owing to high mining costs, it was not possible for this region to make any headway in increasing production and consequently the output remained at about 7,500 tons a day, comparatively few companies operating. There is a disposition on the part of some miners to accept lower wages, but officials of the union have set their hand against any cut. About all that remains are a few contract orders not sufficient to warrant operations more than a day or

so a week. With the spot demand so slim, prices are low.

##### LOGAN AND THACKER

Logan production is still hovering around 40,000 tons a day, much of it being on a contract basis. Some additional business is coming into the district by virtue of the talk of a general strike. A few spot orders are being placed for prepared but even this business is not in as large a volume as the cold weather would warrant. There is no briskness in steam buying.

Mines in the Williamson field are producing about 40 per cent of capacity. There is comparatively little spot buying, except for an occasional order for lump. The greater portion of the coal produced is either for railroads or is moving to Western points on contract. Prices show no signs of advancing.

#### LOW-VOLATILE FIELDS

##### NEW RIVER AND THE GULF

As idleness had been most pronounced in the New River field for a time, the improvement in production has been more marked than in any other smokeless field. With an increase in production, however, there had been a softening of prices. There is a larger movement to Tidewater, for bunkerage and coastwise markets. Much of the prepared coal is moving to Western markets.

Tug River production is now about 60 per cent of capacity, the increase being traceable to a somewhat better Tidewater demand. Much of the prepared coal is going to Western markets. In anticipation of a stronger demand, improvements are under way at a good many plants.

##### POCAHONTAS AND TUG RIVER

Pocahontas production is climbing slowly upward, having now reached more than 300,000 tons a week. More coal is moving to Eastern markets, however, and particularly to Tidewater. Some of the tonnage is also for by-product purposes. Western shipments are large. There is a little more spot buying but as so much more smokeless is going into the market prices have been a little weaker.

Tug River production is proportionately large, ranging above 90,000 tons a week. There is a little more activity in the spot market. The bulk of the product is moving Westward to by-product plants and steel mills, although there is a small tonnage being shipped for bunkerage purposes.

#### SOUTHEASTERN KENTUCKY

The Bell-Harlan fields have doubled their coal production recently. Unofficial L. & N. figures show that there are now between 600 and 700 cars going out daily. This indicates a production rate which is 70 per cent of maximum.

Demand for all grades is better, due to cold weather and stocking for a strike. Coal men here expect a slow but sure industrial revival this spring. Plenty of coal is now available at low

prices. Observers feel, however, that prices will not decline any further. They now are: Block, \$2.75@3; egg, \$2@2.25 and slack, \$1.15@1.25.

#### NORTHEASTERN KENTUCKY

Production is on an upward trend, having reached over 42 per cent of potential capacity. The increase is attributed in part to fear of a strike and also to a slightly better demand for lump coal. The demand for screenings is not quite so strong nor are prices so firm. As a matter of fact, there is little activity in the buying of steam coals.

## West

#### KANSAS CITY

Warm weather hit the retailers last week. Domestic deliveries slumped, but demand on the operators continues fairly strong. Steam plants want to store nut coal and demand for that grade exceeds the production. There is a big break in slack and prices are erratic.

The delivered price on Illinois slack is less than on Kansas coals which is running up the number of "no bills." On the other hand, Illinois egg and lump has advanced while there is no change in the Kansas price for domestic grades.

If there is any one thing more than another that needs stabilizing, not only for the benefit of the producer but consumer as well, it is the coal business. The banker criticizes the operator when he sells his coal at less than cost for he is therefore unable to take up his paper and the public condemns him in no uncertain terms when he takes advantage of the situation to recover his losses.

#### SALT LAKE CITY

With the moderation of the weather the retail business is falling off. Stocks are low in the city.

The mines are more active than they have been for months. Many are of the opinion that a strike will come on April 1. Railroads operating in the mountain territory are storing coal on this account. The Rio Grande Western has 200,000 tons in its terminal yards in Colorado and 52,000 tons in Utah. The U. P. is also taking precautions. One coal company has already cut its wages 25 per cent without causing any trouble.

Operators have been able to dispose of more slack than for some time, but there is still a big surplus of this on hand, the demand being for the larger sizes.

#### DENVER

Although weather conditions were more like winter, production decreased at the close of January. Retail distribution is slow and uncertain.

Bituminous mine prices have dropped \$1 per ton. Some operators had difficulty in meeting this cut of the Colorado Fuel & Iron Co. Rockvale bituminous lump, following a reduction in wages in the Canon City district, was reduced to \$10.25, and nut to \$9.75. Routt County bituminous lump is \$10.75, the difference being in freight, while bituminous nut is \$10.25. Lignite is retailing \$6.50@9.50.

## Chicago and Midwest

### Domestic Market Fair In Spite of Warmth

**Premium on Coal in Transit—Moderate  
Buying in Steam Trade—Railroads  
Store Some—Many Purchasers Seek  
Non-Union Connections.**

Warm weather has brought some cancellations but the domestic situation is still good in the Midwest. Coal in transit is even bringing a premium. The steam business has picked up as moderate reserve buying starts. Railroads are storing cheap coal whenever possible, but little business has been closed, considering the propinquity of April 1. Many steam buyers, however, are quietly casting about, in an attempt to make non-union connections.

The announcement of the Indiana operators advocating a sweeping reduction in wages makes the probability of a strike even more certain. Should John Lewis be able to join forces with the railroad brotherhood the consequences to the unprepared coal consumer would be serious.

For a few days last week the weather was mild. The coal market responded almost instantly, and a great many operators received telegrams calling for cancellations. However, the large tonnage booked by the operators during the last cold spell gave them a substantial surplus to work on.

The domestic market is strong, especially lump and egg sizes. In nearly every case these two sizes are bringing the full circular price. Large wholesalers have placed standing orders with some operators, calling for a certain number of cars per day, to be shipped on consignment to different distributing points. The mood of the retailer is simply this: he wants to place orders but only with the understanding that his order will be filled at once, consequently car numbers are at a premium.

Steam coals took a slight turn for the better, in spite of the increase in production. Some of the larger industries are buying very cautiously, and from four or five different sources, the idea being to accumulate a storage pile which will permit them to operate for approximately 60 days. The opinion appears to be if there is a strike at all it will be of from one month to six weeks' duration. Some coal men, however, feel that a strike will last considerably longer than six weeks. One large railroad has been quietly buying up cheap coal since the middle of December, and this is being stored at a division point in the West.

Illinois and Indiana operators are having no difficulty with their men, who are showing a willingness to work whenever the opportunity occurs. A new element, however, was put into the labor situation a few days ago, when

the United Mine Workers appealed to the Railway Brotherhood with the suggestion of pooling their interests. Should anything be worked out along these lines it may bring great disaster to the country. In well-informed circles it is very largely doubted that there will be any co-operation between the miners and the railroad men.

### CHICAGO

Indications point to a quick revival of the trade, as the increased activity of the market is being noticed by nearly everyone. Producers are receiving telegrams by the dozen, and telephone calls from wholesalers, demanding car numbers on orders already placed, or seeking to place orders for future shipment.

The United Mine Workers, from all present indications, intend to put up a strong fight, that wages cannot readily be reduced without a struggle. The situation is confronted with difficulties. There are those in the Chicago trade who claim that if there is a strike it will only be from a month to six weeks in duration. They base their opinion largely on the fact that the economic trend is toward lower wages, consequently lower production cost, and that the United Mine Workers will not be strong enough to withstand the overwhelming forces at work on the present economic situation of the country.

The labor leaders, however, have to go through a certain amount of strike talk and a lot of noise in order to retain their following; hence, all this talk about increased wages, etc. Contrasted with those who claim the shut-down will be of only a month's duration, are those who think that it will, perhaps, be the worst coal strike in the history of the country.

The weather softened last week, but this did not have much effect in the domestic market, as the previous cold snap created a demand so great that the mines of the Middle West have not had an opportunity to take care of it. Cold weather has again appeared and it is expected that the domestic market will show signs of greater strength.

A tendency on the part of the industrial buyer to stock coal has developed lately. Some companies in southern Illinois have reached a point where they are unable to take orders for more screenings. As the first of April draws nearer it seems likely that steam coal prices will be much in excess of those quoted today.

One of the large distributing companies, specializing in smokeless coal, issued a circular at \$1.75 for mine run. This circular brought in considerable business. It is believed, however, that the same circular, quoting a price of \$2, would have produced the same results, principally on account of the cold weather. West Virginia and Kentucky coals are in fair demand and agents are receiving many inquiries nowadays in regard to shipments to move forward after April 1. In short, the steam buyer is casting about to make a connection with a non-union mine.

### SOUTHERN ILLINOIS

Carterville field is suffering a shortage of lump whereas last week it was in surplus while egg and nut were short.

Prices current are: Screenings \$1.50 @ \$1.65 lump, egg and nut \$4.05 to retailers, \$3 @ \$3.25 to the steam trade, and \$2.75 to railroads. About half the mines are still idle. Only the railroads are storing.

Conditions in the Duquoin and Jackson fields are somewhat similar, except that working time is not so good. Several destitute cases among miners have been reported, especially where sickness prevails and the county authorities are being called upon to aid in the matter of food, clothing and fuel.

The Mt. Olive situation is fairly good because of an unusually good movement to the Northwest and Kansas City. Screenings are \$1.50 and domestic sizes, \$3 @ \$3.50.

The Standard field which shipped lump heavily during the cold weather and piled up other sizes cannot now get cars until the no bills are shipped. Several mines have been idle on this account. Current prices are: Two-inch lump \$2.25 @ \$2.40; 6-in. lump, \$2.50 @ \$3; 3 x 6 in. domestic egg, \$2.50 @ \$2.75; steam nut and egg, \$1.85 @ \$2.10; mine run, \$1.85 and screenings 85c. @ \$1.

### ST. LOUIS

Weather conditions have made business good for the retailer. Demand still continues to show preference for the cheaper grades, slighting anthracite and smokeless. Coke has slowed up.

While the domestic coal demand locally has been good, it has slumped in the country. Steam locally is easy. The buyer is gradually getting a certain storage on hand without creating any excitement on the market, and screenings slumped off from \$1 to 85c.

There is no country demand for steam, although some considerable steam coal is moving to Chicago and some to the Northwest, but these shipments are light in comparison with other years.

Retail prices are firm, as follows:

Carterville .....	\$7.50 @ \$7.75
Mt. Olive .....	6.25 @ \$6.50
Standard .....	5.25 @ \$5.50
West Virginia smokeless .....	12.25
Byproduct coke .....	10.50
Gashouse coke .....	9.75
Anthracite chestnut .....	16.00
Anthracite egg .....	15.50
Anthracite grate .....	15.50

### INDIANAPOLIS

Owing to the colder weather the trade showed a shade more activity than usual. However, toward the end of the week the activity died out after orders were filled.

The T. H. I. & E. Traction Co. was in the market for 300 cars of Indiana coal. It is understood that a bid of \$1.90 was offered and accepted on part of the tonnage. The coal is for storage purposes.

Coal buyers do not show much interest as a result of the impending strike. It was rather expected that strike news would cause a greater demand for storage coal.

### WESTERN KENTUCKY

Western Kentucky is again operating only about two days a week. Retailers are again finding things slow. However, industrial demand is better and



a few concerns are stocking because of the impending strike and because prices are not going down.

Operators of the field argue that prices are now as low as there is any possible chance of their going unless wages are reduced, as they are at rock bottom and some mines are down not because they cannot get business, but because they can't operate profitably.

#### LOUISVILLE

Demand for prepared sizes has slumped badly, and retailing is dull. One of the retail houses has cut the market again, quoting eastern Kentucky lump at \$6, and other grades also 50c. lower than the general market.

Smaller production of lump stiffens screenings. Industrial demand is picking up slightly, and better inquiries are reported, as industries are getting busier, and some of them are stocking a little coal against a strike.

It is believed that present prices will continue for some weeks. There is little prospect of lower prices without more wage reductions, although there are some rumors concerning further reductions in eastern Kentucky. Western Kentucky in most instances is paying the full union scale, except where some private agreements have been made. There have been some reductions in wages reported from Tennessee also.

protection against a possible shortage.

A terrific storm is raging at present here and it is possible that a distinct demand for coal will be felt because of it. Consumers complain of the price of anthracite, but coal men here have partly offset this with statements showing the increased cost of production as well as in every step from mines to furnace. It is stated that there will be no further drop in hard coal, beside the one recorded recently, until April 1 at least.

#### MILWAUKEE

The coal movement continues fairly good, following the recent cold spell, which injected a little caution into consumers. Shipments to the interior are not what they should be, however. Some of the anthracite cargoes which have been held afloat were drawn upon during the past week, stocks in the sheds evidently having been reduced sufficiently to provide storage room. Prices are steadily maintained on both hard and soft coal and on coke.

Milwaukee consumers are not worrying about a strike. It is estimated that there is now on hand, on the docks and afloat, 418,800 tons of anthracite, and 1,107,400 tons of soft coal. Jobbers who handle rail coal exclusively say they are capable of meeting any emergency.

Testimony in the hearing before P. Carter, examiner for the Interstate Commerce Commission, in the complaint of the Milwaukee Association of Commerce, that freight rates on coal from Milwaukee to North Dakota, and between Duluth and other Northern points and North Dakota are prejudicial to the interests of Milwaukee, was completed on Jan. 31. The evidence will be placed before the commission for a decision.

## Northwest

### Coal at Head-of-Lakes Moves in Big Volume

**Snappy Weather Causes Stir on Docks—Retailers Turn Stocks Quickly—Shaky Credits Stabilize—Steam Buyers Feel Safe**

Northwestern markets have quickened with snappier temperatures. Domestic coal is moving off the Head-of-the-Lakes docks in heavier volume, but orders from retailers indicate that quick turnovers in stocks are the rule. The average retailer is keeping his stock pile at the minimum of current requirements. This helps the credit situation which has been shaky all season in the outlying districts.

Steam buyers are still lethargic, as industrial activity remains at low ebb. Consumers see the heavy dock supplies and are lulled to a feeling of immunity from the effects of the impending miners' strike.

#### MINNEAPOLIS

Neither the prophets of a severe winter nor those of an exceeding mild one have been able to claim a 100 per cent record so far this winter, for there has been some of both.

But so far as the general selling demand was concerned, it has been rather fitful much of the time. When the weather was severe, there was a rush of orders—most of which would have come in a few days later on, had mild weather prevailed. In either case, the buyers waited until the last moment possible before buying. Severe weather brought their needs to a head earlier.

On the other hand, the big thing in the view of the coal wholesalers and retailers of the Northwest is the tonnage for the season. Insofar as that is increased, the trade will be benefited, whether the increase comes in a steady gain or in sudden expansions. The former method is easier to handle. But it is the total tonnage which is going to count in the season's record. If enough of an increase is developed, there will be a lesser amount on hand on which to work against the spring's

conditions. Of course the strike is a foregone conclusion, but it is far from certain that it will necessarily mean any great effort on the part of buyers to get under cover. With conditions presented to them quite as serious as heretofore, they have shown a serene indifference whether they bought or not. Nor is there the slightest indication that they will be alarmed when the strike sets in. For spring will be in sight then, and the general sentiment is that "they should worry" over the outcome.

Despite the weather of January, and its possible counterparts in February, coal buying is reluctant and confined to narrow volumes. Retailers are staying close to shore, in handling their needs. Steam buyers cannot be persuaded to stock beyond a very narrow total for the near-present, and other consumers make it a point of honor not to have much more than 15 minutes supply ahead, when a new delivery arrives. The past week being the end of the month, saw much delay in ordering, to get past the first, when there was the usual pickup.

General commercial conditions, which will do more for the coal market than the weather, remain rather dormant. Manufacturing is confined to small volume, and the fuel consumption is small. Once in a while a plant which has been down, starts up, but there still remain many which are running on part time, and under limited production.

The local coal market is weak and uncertain. The advance of 50c. made by one dock company on soft coal, has apparently had little effect upon the general situation, as others made no effort to follow the advance,—as much as they would like to do so, if they could establish it. A retail advertisement appeared lately quoting Franklin County nut. 2 x 3-in. at \$10.25. West Virginia splint at \$9.75 and steam coal at \$8.75.

#### DULUTH

A possible advance in screenings and strong prices all around were the features of the Duluth-Superior harbor market last week. Some dealers are trying to get \$4.25 for screenings. Retail collections are better throughout the Northwest, according to credit bureau statistics. Dispatch from the docks is the best in many years. A large portion of the coal going out is taken by the railroads themselves as

## South

#### BIRMINGHAM

The acute dullness which set in prior to the holidays last year is still holding sway and the hoped-for improvement in demand with the new year has not developed. Basic conditions have undergone no change which would increase coal consumption and buying is still hand-to-mouth.

Expiration of contracts held by the Southern Ry. in the Illinois field has helped mines in this district holding contracts with that road, as allotments on such contracts in the way of deliveries have been increased. No improvement is noted in bunker demand.

The weather has been such as to create a steady but moderate domestic demand and most retailers will do well to clear their yards by April 1. This leaves a very restricted market for the producers and little new business is being booked at the mines.

Quotations are practically the same as reported a week ago.

#### VIRGINIA

Mines are producing at the rate of about 53 per cent of capacity or approximately 100,000 tons a week. The rate of production is higher on the C. C. & O., averaging almost 65 per cent. There is a little new business accruing as a result of the strike forecast but the greater part of the production is still moving on contract.

## News Items From Field and Trade

### ALABAMA

The Montevallo Mining Co., operating the mines at Aldrich, Shelby County, has filed a voluntary petition in bankruptcy in the Federal Court in Birmingham. Liabilities are given as \$574,048.47 and assets \$658,600. Referee E. H. Dryer named Val J. Nesbitt, a local attorney as receiver, who was instructed to operate the properties with interruption. Included in the liabilities is a bond issue of \$368,000. W. S. Lovell is president of the company and head offices are located in Birmingham. The mine is worked by state convicts and was necessarily forced to operate regardless of market conditions. It is understood the company had been stock-piling coal for some time and has a large supply on hand. The product is a high-grade domestic fuel and has enjoyed a wide market in normal times throughout Southern territory.

### COLORADO

In disposing of a number of industrial cases the Colorado Industrial Commission terminated jurisdiction in the wage dispute arising at the Colorado Fuel & Iron Co.'s steel mills at Pueblo, holding that the 10 per cent reduction effected by the company on Jan. 1, met with the approval of employees. Present wages paid at the Pueblo steel mills are still in excess of those paid by competing steel corporations in the East. The effect of the reduction was a resumption of work, which will require the coke plant to operate at capacity.

### ILLINOIS

The annual meeting of the stockholders of the Illinois Union Coal Co., was held at Carnville, recently. Directors elected were as follows: R. S. Levett, W. A. Herriman and F. W. Sharkse, all of New York and Alexander M. Crawford, of Carlinville. The company owns coal fields south and east of Carlinville, which at the present time are undeveloped.

The Sunnyside Mining Co. has been incorporated with capital of \$100,000. The offices will be in Chicago. Incorporators are T. H. McElvain, J. W. McElvain and James W. McElvain.

Upwards of 6,000 acres of coal land lying between Oraville and eastward of Vergennes is being leased. This area has been drilled for the No. 1 and No. 2 seams of Big Muddy gas coal. It is understood that the upper seam No. 5 will be passed up for the lower and better coals. Top and bottom is bringing \$150 per acre while the coal itself is averaging \$50, where the surface is not taken. The proposed mine will be between the Illinois Central and Mobile & Ohio roads and will be owned by an operator in the present Big Muddy field.

### INDIANA

Reassessment of coal properties in Vigo County are as follows: Eureka Block Coal Co., from \$68,090 to \$174,620; Ferguson Coal Co., from \$80,010 to \$146,080; Burnett Coal Co., from \$56,850 to \$71,290; Durand Coal Co., from \$11,890 to \$32,000; Clovelty Coal Co., from \$300,000 to \$230,000; Crawford Coal Co., from \$8,990 to \$21,220; Coal Bluff Mining Co., from \$515,000 to \$510,500; Jackson Hill Coal & Coke Co., from \$97,320 to \$202,930; Lower Vein Coal Co., from \$88,330 to \$181,000; Neutral Coal Producers Co., from \$170 to \$1,000; Miller Coal Co., from \$33,450 to \$29,000; Otter Creek Coal Co., from \$25,590 to \$66,390; Shirkie Coal Co., from \$20,320 to \$34,500; Sanford Mining Co., from \$6,930 to \$14,570; Riley Coal Co., from \$1,850 to \$5,000; Pine Ridge Mines Co., from \$24,320 to \$53,150; Miami Coal Co., from \$270,890 to \$717,945; Vigo Mining Co., from \$6,140 to \$50,070; Vigo Coal Products Co., from \$14,500 to \$16,290; Sugar Valley Coal Co., from \$44,180 to \$75,000; West Clinton Coal Co., from \$7,800 to \$2,830; Tighe Coal Co., from \$18,220 to \$5,000; Vermillion Coal Co., from \$32,020 to \$49,230; Willow Creek Coal Co., from \$7,500 to \$21,000; Deep Vein Coal Co., from \$62,810 to \$181,300; Black Hawk Mining Co., from \$84,000 to \$93,-

450; Bickett-Shirkie Coal Co., from \$87,560 to \$49,250; Fauvre Coal Co., from \$73,690 to \$79,890; Fontanet Coal Co., from \$3,650 to \$5,475; Glendale Coal Co., from \$19,270 to \$60,280; Grant Coal Mining Co., from \$66,640 to \$150,000; Indiana Coal & Gas Co., from \$709,680 to \$920,520.

### KENTUCKY

D. S. Riddle, of the Riddle Coal Co., Chattanooga, was a recent visitor in Pineville.

Harry J. Hood, of the Loony Creek Coal Co., Detroit, was visiting the Harlan section recently.

The Sackett-Speed interests, Louisville, which own the Byrne & Speed Coal Co., some large mining companies, cement mills, etc., have purchased additional coal properties in southeastern Kentucky, known as the Frost holdings of Harlan County, along with the Puckett's Creek R. R., and land of the Kentenia Corporation at the head of Catrons Creek, resulting in holdings of about 8,000 acres of coal land in that district.

The Canone Creek Coal Co., has closed its mine again after operating with a short force of non-union men. About a hundred miners went on strike when the company refused to reinstate two fired loaders. The company had been paying union wages, but was not under contract. The mine has been picketed, and the company has decided to stay down for a time, rather than have trouble.

### MINNESOTA

A Twin City report announces that the Northern Pacific Railway will open up coal fields around Forsyth, Mont., after the exhaustion of its mines at Red Lodge, perhaps two or three years. The coal around Forsyth is an excellent quality, quite suitable for engine fuel. There is said to be a field around Billings, equal in size to the Pennsylvania fields. The company will furnish its Montana section from these mines, and its Washington divisions from the Washington mines. The Eastern sections will be served from the docks on Lake Superior.

### MISSOURI

The Central Missouri Coal & Mining Co. is installing a steam shovel on the leases near Holt Summit.

The Mosby Coal Co. has started the sinking of a shaft for the mine at Mosby. The company has 2,294 acres leased and it is capitalized at \$150,000.

The Plattsburgh-Bibbard Coal Mining Co. reports that the engine house, work shop and tippie of the company's mine at Vibbard have been destroyed by fire. Rebuilding will not take place until a lower operating cost is in sight.

The Home Coal Co., Macon, has leased another mine to fifty of its miners who will operate on the co-operative plan. This mine is located on the Burlington R. R. and has been closed for over a month.

### NEW YORK

The Coal Trade Club of New York is the name of a lunch club formed by representatives of thirty-four companies. It is the intention to hold luncheon on the first and third Wednesday of each month at the Whitehall Club. Addresses on coal, salesmanship, etc., will be delivered. The officers are: F. J. Herman, Pilling & Co., chairman; P. A. Paddock, Dexter & Carpenter, assistant chairman; Wesley Lieb, W. A. Marshall & Co., secretary; Joseph F. Lockwood, treasurer and chairman of committee on arrangements; Lloyd G. McCrum, W. H. Bradford & Co., chairman membership committee; and A. R. Davidson, Blaine Mining Co., chairman of speakers committee.

The Dominion Asbestos & Rubber Corporation, has moved the executive offices to 1780-82 Broadway. The company will retain the present store and shipping office at 67 Murray St.

The Electric Storage Battery Co. is consolidating its various New York offices. The Exide Battery branch has been moved to the New York branch office, 23-31 W. 42nd St., which will hereafter be the headquarters also of the export sales department.

The Phoenix Coal Company, Inc., New York, announces the association of William W. Davenport, Jr., in the general anthracite and bituminous coal business.

C. W. Watson, president of the Consolidation Coal Co., has been elected to the Board of Directors of the Metropolitan Trust Co., of New York.

There has not been as large a response as expected to the letter sent out to the members of the old Tidewater Coal Exchange suggesting a plan to determine the proper basis of demurrage charges by employing a force of accountants to clear up the records. The letter was drafted by a committee consisting of W. A. Marshall, chairman; John Crichton, of the Johnstown Coal & Coke Co., and Harry J. Hughes, New York representative of E. Russell Norton.

### OHIO

James A. Reilly, president of the Cincinnati Chamber of Commerce, has been re-elected president of the Cincinnati Retail Coal Merchants' Association. William Uland is its vice-president.

The Moore Fuel Co., Columbus, has been incorporated with a capital of \$50,000 to deal in coal at wholesale and retail. Incorporators are J. W. Moore, Hugh Ride-nour, Frank Gould, E. J. Durham and L. H. Fitzhugh.

The Main Island Creek Co., and the Norfolk & Chesapeake Coal Co., recently took retailers and other handlers of their coals on separate tours of the West Virginia fields. Both started from Cincinnati.

The L. & W. Coal Co., Wellston, has been incorporated with a capital of \$50,000 to mine and sell coal in the Jackson Field. Incorporators are George M. Leonard, Jr., Albert H. Weisheimer, A. S. Leonard, William Beabont and Hazel Stroth.

The Midway Coal Co., has been chartered with a capital of \$15,000 to mine and sell coal in the Pomeroy Bend District. Among the incorporators are A. Kasper and F. J. Leifheit.

The Corven Coal Co., Saltillo, has been incorporated with a capital of \$15,000 to mine coal. Among the incorporators are D. N. Postlewaits and D. B. Corven.

Demand for a trial by jury of the involuntary bankruptcy proceedings brought against it by the Tildesley Coal Co., Cincinnati, and others, was filed in United States District Court last week by the Mohio Coal & Mining Co., Cincinnati. It also filed an answer to the creditors petition denying it is insolvent or that it committed an act of bankruptcy in connection with receivership proceedings filed in Common Pleas Court for Hamilton County July 7, 1921. As further defenses it is alleged that E. M. Poston and John B. Johnston, as receivers of the Interstate Coal & Dock Co., had no legal authority to join in the petition, and that as all of the petitioning creditors had notice of the receivership they are stopped from maintaining this action because the petition in bankruptcy was not filed more than four months ago.

United States District Attorney James R. Clark recently filed in United States District Court at Cincinnati a motion for the dismissal of the suit filed last September by the Houston Coal Co., of West Virginia, against the United States for recovery of \$314,000 alleged to be due on coal requisitioned by the Navy department from April, 1920 to and including February, 1921. In his motion Attorney Clark contends the petition does not contain allegations showing that this court has jurisdiction and does not set forth a cause of action against the United States. In this suit the plaintiff sought to recover the difference between an allowance of the Government of \$4 a ton and the market price ranging from \$8 to \$23 a ton, together with damages alleged to have been occasioned through the Government's action in requisitioning the coal.

### OKLAHOMA

Claude Sturgeon has been appointed receiver for the Samples Coal Mining Co., of McAlester, on plea of A. U. Thomas, trustee. The mine will be operated under the receiver. Attorneys for the plaintiff alleged that the company had failed to meet its payroll due Jan. 1, and that this condition had been brought about through



inability of the company to market a large quantity of coal now loaded and standing on the company's tracks.

The Rock Island Coal Mining Co., of Hartshorne, is one of the few companies in Oklahoma that is producing coal in normal quantities. This company, with three mines near Hartshorne, is now turning out 2,700 tons of coal a day. The mines are being operated on full time, six days a week.

J. W. Kincaid, has resigned as president of the Miners National Bank, Henryetta, to become actively engaged in coal operations.

The Oklahoma School of Mines at Wilburton, announces that a special course of study for mine superintendents, pit bosses, gasmen and hoisting engineers will soon be offered. The instruction given will be placed within reach of every miner who desires to prepare to pass the state examination for these various positions. The course will include purely practical problems along mine ventilation, mine timbering, mine gases, mine pumping and hoisting problems.

## PENNSYLVANIA

John Ira Thomas has been appointed mine inspector of the thirteenth bituminous district and Thomas F. Curry and John Whitehouse were named as a board to examine all applicants for certificates of qualification as mine foremen, assistant mine foremen and mine bosses in the thirteenth district. All are residents of Cambria County.

The Pittsburgh Coal Co., is having plans prepared for a housing development for miners at its Liberty properties. The initial construction will comprise about sixty dwellings. Work will be commenced at an early date.

Joseph Blackburn, manager for W. H. Bradford & Co., of Morgantown, spent a day or so in Pittsburgh on business during the pre-holiday week.

Among recent appeals dismissed by the compensation board are as follows: Michael Earley, Dunmore, vs. Pennsylvania Coal Co., Scranton. George W. Wenrich, Cressona, vs. Buck Run Coal Co., Minersville. Julia Druga, Harrisburg, vs. Mather Collieries Co. (Pickands, Mather & Company). This was an appeal by the defendant from an award of compensation by Referee Cummings, District No. 5, and the board in a brief opinion affirms the findings of fact and conclusions of law of the referee.

Benjamin Chaplin, of the Chaplin Collieries Co., was a visitor in the Pittsburgh market during the latter part of December.

The North America Coal Co., of Morgantown, was represented in the Pittsburgh market a short time ago by C. D. Jenkins, of Morgantown.

J. M. Humphrey, president of the Lehigh Valley Coal Co., met with an automobile accident recently, as a result of which he broke two bones in his ankle.

Machinery valued at \$50,000 was destroyed by fire recently at the Avella Mine of the Pittsburgh & Meadow Lands Coal Co., Avella, near Washington. Plans are under way for immediate replacement.

The most drastic manifestation thus far of the lack of demand for coal was given, when the East Point Coal Co., operating the mines at Pond Creek, issued orders for an indefinite suspension. The fires were drawn, and every arrangement made for closing down the mines for a long period.

J. L. Malcomson has been appointed manager of the Philadelphia office of Dexter & Carpenter, Inc., effective Feb. 1.

The Roberta Coal Co., a concern organized a year ago by Johnstown business men, but which had been kept from the public, made itself known recently when a reorganization was effected. General offices are located in Johnstown while operations are between Garway and Mahaffey, Clearfield County. Officers elected at the recent meetings are: President, Dr. Louis Franko; secretary-treasurer, Francis C. Martin; general manager, I. B. Williams. The officers with the following form the board of directors: David Ott, P. L. Carpenter, Maurice Berney, James A. Graham, H. A. Slick and J. A. Dutra, the latter of La Josa.

The Consolidated Fuel Co. at Pittsburgh has contracted for local trade bins and refuse disposal machinery.

Robert Charlton, of South Brownsville, has resigned his position at Alicia No. 1 Mine of the Pittsburgh Steel Co., and accepted the position of salesman for the Gracelli Powder Co.

## UTAH

In order to obtain information for use in the proper apportionment of Government lands into leasing units under the terms of the Leasing Act of 1920 a party of the United States Geological Survey, under the direction of E. M. Spieker, made a detailed study last summer of the thickness and distribution of the coal beds and the quality of the coal in the Wasatch Plateau, Utah. The area most thoroughly studied and mapped lies in the eastern part of the plateau, between Wildcat Canyon, in T. 13 S., R. 8 E., and the mouth of Huntington Canyon, in T. 17 S., R. 7 E. The Geological Survey has published a report of these investigations that will be furnished any one desiring it.

## VIRGINIA

Ancillary receivers have been appointed for the Northern Transportation Co., operators of tugs and barges in the New England coal trade. The company, according to proceedings filed against it by the Old Dominion Marine Ry. Co., and other creditors, is subject to claims of approximately \$70,000 from ship repair plants.

It has been announced from the general offices of the Flat Top Fuel Co., that the Newport News and Norfolk branch offices have been combined and that C. J. Hoilman has been appointed as manager of the Norfolk office. He was manager of the Newport News office and prior to going to Newport News was connected with the general office of the company at Bluefield. He has been named as the successor to H. B. Holland who has been transferred to New York where he becomes Eastern manager.

## WASHINGTON, D. C.

Arguments have been heard in the Court of Claims on the demurrer of the government to the suit of the Coronado Coal Co., which seeks to recover prices in addition to those allowed by the Navy under commandeering orders during the war.

F. M. Felker, vice-president of the McGraw-Hill Publishing Co., who for the past eight months has been assisting Secretary of Commerce Herbert Hoover in the reorganization of the department, has resigned. Mr. Felker has not, however, completely severed his relations with the secretary or the department. He has been appointed a special agent of the Bureau of Foreign and Domestic Commerce, to continue in a consulting capacity the work he has been rendering.

Engineer Commissioner Keller of the District of Columbia told the House Committee on Appropriations that there was no advantage in shipping coal by canal. He had investigated the matter several years ago when there was a rail transportation shortage and found that only 200,000 tons of coal could be handled on the barge canal in a season, which he classed as a "drop in the bucket." Representative Johnson, Kentucky, said the B. & O. had a controlling interest in the C. & O. canal to Washington and fixed the rates on coal to correspond with the rail rates.

The Department of Commerce has requested Congress to pay a claim of \$271 to the Consumers Coal Co., for damage to its wharf by collision of a light vessel at Brunswick, Ga., last October.

## WEST VIRGINIA

W. A. Wilson, who has been associated with the interests of Colonel T. E. Houston in the Thacker field for a number of years, has become the general superintendent of these interests, effective Feb. 1.

J. B. Clifton, head of the Raleigh Smokeless Fuel Co., at Beckley, will spend the next few months in South America.

The Nelson Fuel Co. of Lewisburg has increased its capital stock, following action of its stockholders and authority granted by the Secretary of State, from \$500,000 to \$1,000,000. The authorized capital stock of the William Dempster Coal Co., of Charleston, a comparatively new company, has also been increased from \$50,000 to \$150,000.

L. C. England, who has been acting as sales manager of the Fairmont Mining Machinery Co. has been appointed assistant general manager of the company. Leonard Sergeant is the new sales manager of the company. Although formerly connected with this concern as sales engineer, he had been for about a year associated with the Huntington Supply & Equipment Co., with headquarters at Beckley.

Several changes have been made in the personnel of the operating department of the Consolidation Coal Co. in the West Virginia district. John O. Riggins who has been superintendent of several of the company plants has been transferred to the department of tests. He has been succeeded as superintendent at Mines Nos. 26, 57 and 85 by B. G. Ash, who has been superintendent at Mines Nos. 21 and 91. E. B. Courtney has become the superintendent at Mines Nos. 21 and 91 succeeding Mr. Ash. Mr. Courtney was superintendent at Mine No. 32. He is succeeded at that post by C. H. Higginbotham who has heretofore been superintendent at Mines Nos. 51, 66 and 40.

Eugene H. Arnold, president of the Randolph Colliery Co. of Elkins, is spending some of the winter months at DeLand, Fla.

Governor E. F. Morgan has reappointed R. M. Lambie, as chief of the Department of mines for the four years ending Dec. 31, 1925. The present head of the West Virginia Mining Department was appointed by Governor Cornwell a few years ago when W. J. Heatherman resigned to become identified with the Cleveland Cliffs Iron Co. Mr. Lambie has had extensive experience in the New River and other fields.

What eventually promises to be the greatest coal operation in West Virginia, is being developed at Three Forks, a mining community near Lundale. Coal will be taken simultaneously from 52 openings in the same coal seam. Depression in the industry has retarded development of the operation, but the entire project is expected to be finished in two years. The operation is one of the newest sponsored by the Lundale Coal Co., interests, of which George M. Jones, a well-known coal operator, is general manager and a large stockholder.

Harman Woodward has been appointed as Southern agent of the Pocahontas Coal Sales Co., and of the Glen Alum Fuel Co. Mr. Woodward will make his headquarters at Bluefield. For a time Mr. Woodward was in charge of the business of Westover Dodson & Co., at Bluefield and for fifteen years he has been associated with companies in the Pocahontas region.

## WISCONSIN

James J. McGuigan of the Milwaukee Coke & Gas Co., left New York recently for Sumatra on a business mission.

Plans are completed for reorganization of the Interstate Coal & Dock Co., which was bid in for \$350,000 by C. H. Mead, secretary of the creditors' committee acting for the creditors of the company. The new company will have capitalization of about \$3,000,000, with some of the largest producers in the United States numbered among its stockholders. The plans of the new company contemplate enlargement and improvement of the Green Bay dock with other improvements looking to the handling of a greater tonnage. Included among the stockholders of the new company are:

## BRITISH COLUMBIA

### OUTPUT FOR YEAR 1921

Vancouver Island District			
	1921	1920	
Western Fuel.....	599,000	626,633	
Corporation of Canada.			
Canadian Collieries (D) Ltd.			
Comox .....	426,354	455,914	
S. Wellington .....	82,700	90,309	
Extension .....	209,876	196,405	
Nanoose Collieries.....	48,500	32,500	
Granby Cons. M., S. &			
P. Co. ....	266,817	201,589	
Pacific Coast Coal			
Mines Ltd. ....		94,904	
Total .....	1,633,247	1,698,254	
Crow's Nest Pass District			
Crow's Nest Pass Coal			
Co.			
Coal Creek .....	431,686	431,783	
Michel .....	290,122	265,592	
Corbin Coal & Coke Co.	74,773	151,014	
Total .....	796,581	848,389	
Nicola-Princeton District			
Middlesboro Collieries.	73,319	87,602	
Fleming Coal Co.....	34,886	32,122	
Coalmont Coal Co.....	72,689	8,983	
Princeton Coal Mining			
Co. ....	13,114	20,717	
Telkwa Coal Co. ....		1,400	
Total .....	194,008	150,824	
Total for the field.....	2,623,836	2,697,467	

## Traffic News

In the case before the I. C. C. involving intra-state rates on bituminous coal in Ohio, the Public Utilities Commission of Ohio and the State of Ohio contend that any advance in the rates on coal from and to points within Ohio in excess of 40 per cent will be discriminatory to Ohio and should not be allowed. The jurisdiction of the I. C. C. over these rates is also questioned.

In a brief in its case the J. L. Mott Co., asks the commission to establish through rates on bituminous coal from B. & O. points to Trenton for Pennsylvania delivery the same as are in effect for Philadelphia and Reading delivery. The railroads reply in a brief that this would diminish the effective use of cars, impair distribution, slow down movement and operate to the disadvantage of the public. Attention is called to difficulties arising from a two-line haul as contrasted with a one-line haul.

The West Side Fuel Co., of Lansing, has complained against unreasonable and illegal demurrage charges on coal at Lansing, Mich.

The suspension of coal rates granted by the I. C. C. Dec. 6, lowering the rates on coal from Wyoming mines to points in Utah, thus enabling dealers in Wyoming coal to compete with the Utah dealers, was the subject of a hearing conducted in Salt Lake City, Feb. 6.

The I. C. C. has suspended until March 24 proposed reduced rates on coal to Kansas City, Mo.

The Lackawanna Steel Co., in a complaint alleges unreasonable rates on coal and coke from the Reynoldsville, Pittsburgh, Connellsville and related coal fields to Buffalo and vicinity.

The Zion Institutions and Industries, of Zion, Ill., have complained against unreasonable rates on bituminous coal from mines on the Evansville, Suburban and Newburgh and Evansville and Ohio Valley railways to Zion, Ill.

## Recent Patents

**Safety Device for Mine Elevators.** John S. Barnette, Jr., Broughton, Penn., 1,398,216. Nov. 22, 1921. Filed March 16, 1920; serial No. 366,318.

**Trail Coal.** Samuel L. Bouldin, Oswego, Kansas, 1,398,833. Nov. 29, 1921. Filed Oct. 16, 1920; serial No. 417,354.

**Mine-Car Controlling Mechanism.** George Foster, Bicknell, Ind., 1,398,896. Nov. 29, 1921. Filed Aug. 14, 1919; serial No. 317,491.

**Drag-Scraping Apparatus.** William E. Hale, Fort Washington, Penn., assignor to R. H. Beaumont Co., Philadelphia, Penn., 1,398,897. Nov. 29, 1921. Filed Feb. 11, 1920; serial No. 357,768.

**Rock-Drill Sharpening Device.** Joseph H. Hines, Auburn, Calif., 1,397,960. Nov. 22, 1921. Filed March 28, 1919; serial No. 285,808.

**Adjustable Straightedge Plumb and Level.** Philip T. Fagrie, Seattle, Wash., 1,398,183. Nov. 22, 1921. Filed April 29, 1919; serial No. 293,542.

## Publications Received

**Coal and Coke Mixtures as Water-Gas Generator Fuel.** technical paper 284, by W. W. Odell, gas engineer, has been issued by the United States Bureau of Mines. Details are given of studies recently made at Davenport, Ia., in co-operation with the Illinois State Geological Survey and the Engineering Experiment Station of the University of Illinois, in which very satisfactory results were obtained with the use of coke and Illinois bituminous coal in the manufacture of water gas. Copies may be obtained by applying to the Bureau of Mines, Washington, D. C.

A book entitled "The Shipping Board and Our Merchant Marine," is being distributed by The Mechanics & Metals National Bank of the City of New York. The booklet presents an analysis of the situation now existing in the United States, wherein the Shipping Board constitutes an important factor in the economic situation of the country.

The **Miners' Safety and Health Almanac** for 1922 has been issued by the United States Bureau of Mines, in co-operation with the United States Public Health Service. The almanac was compiled by R. C. Williams, passed assistant surgeon, U. S. Public Health Service. The almanac is freely illustrated and contains many articles by experts in safety, health and sanitation problems. Copies may be obtained from the Bureau of Mines, Washington, D. C.

**Year Book of the National Association of Cost Accountants.** Contains practical subjects of cost information. Non-members of the association can secure copies, price \$3, by sending remittance to the association, 130 W. 42nd St., New York City.

## Trade Catalogs

**Pawling & Harnischfeger Co.,** of Milwaukee, Wis., distributed a novel piece of printed matter at the Chicago Good Roads Show, in the form of two disks with an eyelet in the center. By moving the upper disk in a circle the various booms that may be used with the Pawling and Harnischfeger 8 in 1 machine are shown.

**Circuit 600 Volts "Snuff-Arc" Type A Safety Switches.**—Circular No. 52. The Trumbull Electric Mfg. Co., Plainville, Conn. Pp. 10; 3½ x 6 in.; illustrated. This switch is the same as the regular 600 V Knife Switch except that it has a swinging moulded barrier which extinguishes the arc by preventing side flare and immediately cutting it in two.

**Quigley Fuel Systems.**—Catalog No. 12. Hardinge Co., 120 Broadway, New York City. Pp. 48; 8½ x 11 in.; illustrated. Describes methods of preparing, transporting and burning of pulverized fuels, with plant layouts and description of the Unit Milling Plant. This catalog will doubtless be useful to the engineer designing power plants or furnaces requiring considerable quantities of heat.

**Chicago Pneumatic Dry Vacuum Pumps.**—Chicago Pneumatic Tool Co., Chicago, Ill. Bulletin 710. Pp. 28; 6 x 9 in.; illustrated. Describes how through the elimination of inlet valves, as well as through the use of the Simplate discharge valve, clearance has been minimized.—Advertiser.

**Hoists, Electric and Steam for Mine Service.**—Pittsburgh Mining Machinery Co., Pittsburgh, Pa. H-101. Pp. 4; 8½ x 11 in.; illustrated. Describes factors entering into the problem of selecting correct hoist.

## Association Activities

### Monogahela Coal Association

The Monogahela Coal Association, composed of operators along the Monogahela Ry. and its connections in northern West Virginia, has been organized, for the purpose of bringing the members into closer touch with each other respecting problems peculiar to the field in which they operate. The members companies are already affiliated with the Northern West Virginia Coal Operators' Association, which embraces the entire Fairmont field.

The officers of the new association are as follows: W. E. Watson of Fairmont, president; B. M. Chaplin, vice-president; J. B. Hanford, treasurer, and Harry C. Owen, acting secretary. All of the officers except Mr. Watson reside in Morgantown. George S. Connell, general manager of the Pittsburgh Coal Co., a Connellsville company, and A. Q. Davis of Uniontown, were Fayette County men elected on the board of directors.

### Tug River Operators Association

Much opposition developed at the annual meeting of the association, held at Welch, to the bill proposing to establish a fuel yard at Washington, the sentiment being expressed that this might be a preliminary step toward bringing the coal industry into the realm of politics. Announcement was made after the meeting that "it was felt by a number present that this was a move on the part of some politicians that may result in the establishment of all sorts of bureaus for coal, merchandise and what not all over the country." Operators also gave consideration to the Ohio rate case and devised plans to fight the attempt to widen the differential on railroad rates on all coal going West.

The following executive committee was elected for the year: A. B. Rawn, of Hunt-

ington; A. F. Leckie, of Welch; J. T. Wilson, of Bluefield; H. E. Harman, of Tazewell, Va.; H. A. McCoy, of Twin Branch; George Wolfe, of Beckley; H. F. Warden, of Bluefield; L. Epperly, of Bluefield; C. H. Harman, of Tazewell. The following officers were elected by the executive committee: A. B. Rawn, president; A. F. Leckie, vice-president; C. C. Morfitt, secretary; J. T. Wilson, treasurer. A. B. Rawn and C. C. Morfitt were designated as the representatives of the district on the executive committee of the West Virginia Coal Association.

### Northeast Kentucky Coal Association

The fourth annual meeting of the association was held at the Ventura Hotel at Ashland, Ky., Jan. 26, there being an unusually large attendance at the annual gathering. It was pointed out during the meeting that through association activity a through rate has been established to Newport News for export and trans-shipment beyond the capes. The association went on record as opposing a production tax on coal and urged all interested to do all within their power to defeat the enactment of this or any other such class legislation.

A resolution was carried unanimously providing that the following counties might be embraced in the association: Boyd, Greenup, Carter, Rowan, Elliott, Lawrence, Martin, Johnson, Morgan, Magoffin, Floyd, Pike, Knott and Letcher. The association went on record as approving the adoption of the American valuation plan in the tariff bill.

The following officers and members of the executive committee were elected: Charles W. Connor, Esco, president; E. R. Price, Consolidation Coal Co., Van Lear, vice-president; E. L. Dailey, Hellier, second vice-president; George B. Archer, Prestonberg, treasurer; C. J. Neekamp, Ashland, secretary. Executive committee: George D. Archer, Prestonburg; E. L. Bailey, Hellier; Chas. W. Connor, Esco; T. S. Haymond, Fleming; Henry Lavers, Paintsville; E. R. Price, Van Lear; F. E. Durham was elected as statistician.

## Obituary

**Herbert M. Tower** for many years a coal merchant in New Haven, Conn., died at his home in that city recently.

**Robert A. Powell**, coal dealer of Henderson, Ky., died at Louisville recently, following an operation.

**Charles T. Malcolmson**, of Chicago, president of the Malcolmson Briquet Engineering Co., died recently in the Grant Hospital, Chicago. He was widely known throughout the Western states in mining circles.

**Clarence H. Jones**, coal operator of Terre Haute, Ind., died recently in an Indianapolis hospital. Mr. Jones was 62 years old and had been in ill health for nearly a year. He was president of the Colona Coal Co. and also of the Lenora Coal Co., operating mines in Sullivan, Ind.

## Coming Meetings

**Society of Industrial Engineers** will hold its national spring convention at the Hotel Statler, Detroit, Mich., April 26-28.

**American Institute of Electrical Engineers** will hold its midwinter convention in New York City, Feb. 15, 16 and 17. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

**American Institute of Mining and Metallurgical Engineers** will meet on Feb. 20 to 23 in New York City. Secretary, F. F. Sharpless, 29 West 39th St., New York City.

**Canadian Institute of Mining and Metallurgy** will hold its annual meeting March 1, 2 and 3 at Ottawa, Canada. Secretary, G. C. Mackenzie, Drummond Building, Montreal, Quebec, Canada.

**Southern Appalachian Coal Operators' Association** will hold its next meeting Feb. 10, 1922, at Knoxville, Tenn. Secretary, J. E. McCoy, Knoxville, Tenn.

**Pittsburgh Vein Operators' Association of Ohio** will hold its annual meeting on Feb. 13, 1922, at Cleveland, Ohio; D. F. Hurd, secretary.

**Rocky Mountain Coal Mining Institute** will hold its next meeting at the Albany Hotel, Denver, Col., on Feb. 20, 21 and 22. Secretary-Treasurer, F. W. Whiteside, Denver, Col.